

RESERVOIR LEASE

This Reservoir Lease (“Lease”), effective as of July 19, 2022, is by and between the City of Grand Junction, a Colorado home rule municipal corporation (“City”) and Snowcap Coal Company, Inc., a Delaware corporation (“Snowcap”).

RECITALS

A. The City owns the real property where the former Vincent No. 2 Reservoir a.k.a. Vincient No. 2 Reservoir (“Reservoir”) and dam, the Vincent No. 2 Dam a.k.a. Vincient No. 2 Dam, Dam ID: 720319, (“Dam”), are located. The City’s real property holdings in the area of the Reservoir are extensive. The Reservoir and Dam are generally located on the South 1/2 Section 28 of Township 11 South, Range 97 West, Sixth Principal Meridian. The City also owns, among other lands, the following property all of Township 11 South, Range 97 West, Sixth Principal Meridian: SE1/4 SE1/4, W1/2 SE1/4 and SW1/4 Section 26; W1/2 SE1/4 Section 27; S1/2 Section 28; N1/2 NE1/4, SE1/4 SE1/4 and W1/2 Section 29; E1/2 NE1/4, W1/2 SE1/4 and W1/2 Section 32; N1/2, NE1/4 SW1/4 and SE1/4 Section 33; All Section 34; All Section 35 (collectively the “Vincent Reservoir Surrounding Property”).

B. Colorado law requires augmentation of out-of-priority stream depletions and Snowcap has determined that its Roadside Portals Mine causes limited out-of-priority stream depletions to Rapid Creek in the vicinity of the mine. Snowcap is required by Colorado law and the requirements that certain Compliance Order on Consent (“Consent Order”) issued by the State Engineer and the Division Engineer for Water Division 5 to implement temporary and permanent solutions to remedy any injurious out-of-priority stream depletions to Rapid Creek attributable to the Roadside Portals Mine (“Stream Depletions”).

C. Snowcap has identified the Reservoir as a source for the storage of augmentation water to remedy the Stream Depletions. Snowcap has investigated the Reservoir and Dam and has determined that rehabilitation of the Dam would benefit its efforts to comply with the Consent Order and its legal obligations under Colorado law.

D. The City recognizes that the rehabilitation of the Dam and Reservoir would provide long-term benefits to the Property and the City’s neighboring properties in the form of stock water, wildlife habitat, and a water source for wildfire suppression. The City also recognizes the Reservoir has the potential to positively impact the Rapid Creek Drainage.

E. Snowcap has obtained approval from the Dam Safety Branch of the Colorado Division of Water Resources to rehabilitate the Dam consistent with plans approved March 15, 2022.

F. Snowcap desires to enter into this Lease to rehabilitate the Dam and operate the Reservoir to satisfy the Consent Order and to use water stored in-priority in the Reservoir as a source of replacement supply in a decreed plan for augmentation and the City desires to lease those sites to Snowcap.

NOW, THEREFORE, in consideration of the recitals, terms, covenants and conditions herein to be kept by the parties hereto, the City and Snowcap agree as follows:

SECTION I. DEMISE AND ACCESS

City is the owner of the real property in the South 1/2 Section 28 of Township 11 South, Range 97 West, Sixth Principal Meridian commonly known as Vincent No. 2 Reservoir and illustrated in the figure attached as Exhibit A incorporated herein by reference (the "Property"). City offers and Snowcap desires to lease the Property under the terms and conditions of this Lease. The Property encompasses the maximum permitted size of the Reservoir, the Dam, and includes adequate space for operation and a safety buffer. For illustration purposes only, based on projections, the normal high-level mark of the Reservoir shall impact an area of approximately 41.3 acres and a maximum water level would impact an area of approximately 66.8 acres.

Snowcap shall have the right to access the Property, through the term of this Lease, for the construction, maintenance, operation, and repair, including incidental access to the forgoing, of the Reservoir and Dam. Snowcap shall access the Property in the least intrusive manner necessary to complete its work, repair or operation and shall have the right to access the Property over, across, and through the City's real property generally located at W1/2 SE1/4 Section 27, South 1/2 Section 28, N1/2, NE1/4 SW1/4 and SE1/4 Section 33, all Section 34 all of Township 11 South, Range 97 West, Sixth Principal Meridian.

SECTION II. BASIC TERM

The initial term of this Lease shall be twenty-five (25) years ("Term"), commencing on the effective date. The Parties intend for the Lease to be renewed for a successive Term(s) of twenty-five (25) years (each a "Renewal Term"); however, the statement of that intention does not bind successor City Councils. Notwithstanding, and in order to endeavor to perpetuate the current mutual agreement of the Parties, the City will a) notify Snowcap not less than one hundred five (120) days prior to the end of the then existing term if the City intends to not renew the Lease for a Renewal Term and b) in the event of a notice of non-renewal Snowcap may petition the City Council to renew the Lease. The decision to renew is within the sole discretion of the City. When the City intends to renew the Lease for a Renewal Term (i.e., does not notify Snowcap of an intention to not renew) it will advance the necessary or required

approval process to City Council. In the event City Council does not approve a Renewal Term(s) the Parties may negotiate a replacement lease on mutually acceptable terms or b) terminate this Lease. .

SECTION III. RENTAL

Snowcap agrees to pay City, as rental for the Property, improvements and appurtenances, the one-time sum of \$7,000.00 (Rent) for the initial term, payable as follows:

Snowcap agrees to timely pay any and all real estate taxes associated with improvement assessments which may properly be levied against the Property, and any taxes or assessments levied against the personal property of Snowcap, or any other leasehold interest acquired by Snowcap under this Lease. Snowcap further agrees to pay any and all utilities, charges, and other expenses incurred in connection with Snowcap's use and operation of the Property, Snowcap shall pay any such charges on or before the date the same become due. If Snowcap fails to timely pay any and all amounts required pursuant to this Section 3, the City may pay such amounts and, in such event, the amount(s) paid by the City, plus interest thereon at the rate of 15% per annum and shall be payable to the City by Snowcap.

SECTION IV. VANWINKLE LEASE

Snowcap and the City acknowledge that the Property is currently leased to VanWinkle Ranch, LLC, a Colorado limited liability company ("VanWinkle"), under that certain Somerville Ranch and Anderson Ranch Lease dated May 1, 2020 (the "VanWinkle Lease"). The VanWinkle leasehold is for several larger parcels of land and the Property makes up a minor portion of the VanWinkle leasehold. Snowcap and VanWinkles, by separate agreement, have agreed to Snowcap's sublease of the Property and during the term of the VanWinkle Lease, Snowcap shall be a subtenant of VanWinkle, to which the City consents. A copy of Snowcap and VanWinkle's sublease is attached as Exhibit B and to the extent necessary or require this Lease shall modify the VanWinkle Lease. If and when there is a termination of the VanWinkle lease, this Lease shall be deemed the leasehold for the Property. Any subsequent lease(s) for City real property adjacent to the Property shall exclude the Property from the real property lease(s) and shall be subject to Snowcap's rights and tenancy of the Property and rights of access under this Lease.

SECTION V. REHABILITATION OF DAM

Snowcap at its sole cost and expense shall rehabilitate the Dam in accordance with the March 15, 2022, Approval of Plans and Specifications from the Dam Safety Branch of Division of Water Resources, the Vincent #2 Reservoir Construction Specifications dated March, 2022 prepared by Applegate Group, Inc. (“Construction Specifications”), and the Snowcap Coal Co. Vincent No. 2 Reservoir Construction Plans Dam ID: 720319, Water Division 5, District 72 Mesa County, January, 2022 (“Construction Plans”). A copy of the Construction Specifications and Construction Plans are attached as Exhibit C. Such rehabilitation efforts shall commence as soon as site conditions allow at the Property. Once rehabilitation of the Dam has been completed and Snowcap has secured all necessary governmental approvals Snowcap shall fill and operate the Reservoir as soon as conditions allow.

SECTION VI. PURPOSE

The purpose of this Lease is for Snowcap, or it’s agent(s), to repair, operate, fill, and maintain the Reservoir and Dam for water augmentation purposes pursuant Colorado law, the Consent Order, and all subsequent orders of the State Engineer, the Division Engineer for Water Division 5, and orders and decrees of the District Court in and for Water Division 5. Additionally, Snowcap shall have the right to use and operate the Reservoir and Property for other incidental purposes, including, but not limited to, providing stock water to VanWinkle and subsequent neighboring leaseholds, wildlife habitat, and a water source for wildfire suppression. Additionally, the City recognizes the incidental purposes of improving the Rapid Creek Drainage and that Snowcap will work with other interested parties to reasonably improve Rapid Creek Drainage.

SECTION VII. FRUSTRATION OF PURPOSE

The City recognizes that Snowcap’s primary purpose of entering into this Lease is to comply with Colorado law requiring augmentation of the Roadside Portal Mine’s out-of-priority depletions to Rapid Creek and the Consent Order which require the storage and subsequent release of augmentation water. Snowcap is diligently prosecuting the approval of its plan to utilize the Reservoir to satisfy the Consent Order and its obligations under Colorado law regarding augmentation of any depletions to Rapid Creek attributable to the Roadside Portals Mine, including obtaining water rights for augmentation water to be stored in the Reservoir and approval for its plan to release of the same as a source of replacement. If despite Snowcap’s diligent efforts, it is unable to obtain necessary governmental or judicial approvals necessary to utilize the Reservoir to satisfy its obligations and purposes of this Lease, including, but not limited to, failing to obtain a decree from the Water Court in and for Water Division 5 for approval of its planned augmentation plan, Snowcap shall have the right to terminate this Lease on 60-days’ notice. Likewise, if any governmental approval that is

necessary for Snowcap to carry out its purposes of entering this Lease is revoked or otherwise canceled, despite Snowcap's best efforts to prevent the cancelation or revocation, Snowcap shall have the right to terminate this Lease on 60-days' notice. In the event of termination pursuant to this paragraph the City shall be entitled to keep and retain the Rent.

SECTION VIII. TENANT COVENANTS

At Snowcap's sole cost and expense, Snowcap shall maintain and keep the Property and all improvements upon the Property in working order. If improvements have been made at Snowcap's expense, at the expiration of this Lease, Snowcap shall surrender the Property and improvements thereon to City in working order, reasonable use and wear excepted.

Snowcap agrees that all uses shall be lawful uses only. Snowcap shall diligently seek a decree for water storage right that may benefit the Property and the Vincent Reservoir Surrounding Property with a water supply for wildfire suppression, stock water, and wildlife habitat.

Besides improvements relevant to the rehabilitation and operation of the Dam and Reservoir, Snowcap shall install no structural or land improvements without the prior written consent of the City, which consent shall not be unreasonably withheld. The City acknowledges access roads to and from the Reservoir and Dam may need to be improved or constructed. Changing site conditions which reasonably require minor rerouting or modification of the existing or authorized access road(s) shall not be deemed to be structural or land improvements and shall not require prior written consent of the City.

Snowcap agrees to waive and forego any claim, cause of action or demand Snowcap may have against the City, its officers, agents and employees for injury to or destruction of any property of Snowcap or any third person that may be lost, injured, destroyed or devalued as a result of the act, or failure to act, of Snowcap or any third person; and to indemnify the City, its officers, employees and agents and to hold the City, its officers employees and agents harmless from any and all claims, damages, actions, costs and expenses of every kind in any manner arising out of, or resulting from Snowcap's use of the Property, not arising from the willful misconduct of the City.

Snowcap agrees, at Snowcap's sole expense and during the term of this Lease, to purchase and maintain in effect commercial general liability insurance to provide coverage for liability in the event of bodily injury or property damage for which Snowcap is legally liable. Such insurance shall be in an amount not less than ONE MILLION DOLLARS (\$1,000,000.00), per occurrence for bodily injury, personal injury, and property damage, and \$1,000,000.00 in the aggregate. Business Automobile Liability insurance shall also be maintained with minimum combined single limits for bodily injury of not ONE MILLION DOLLARS (\$1,000,000.00) each accident. The City of Grand Junction shall be included as

an additional insured for its' liability due to the negligence of Snowcap. Evidence of the forgoing may be found at: <https://www.aep.com/b2b/moi>.

Snowcap shall comply with all Workers' Compensation laws and proof of Workers' Compensation insurance may be found at: <https://www.aep.com/b2b/moi>.

Snowcap agrees to use the Property for reservoir and water augmentation operations, and other related uses only, and conduct said operations in a proper and workmanlike manner and in a manner that will not cause deterioration of or destruction to the Property other than those things necessary to build, operate and maintain the Reservoir as prescribed by the Colorado State Engineer, the Division Engineer for Water Division No. 5, and the Water Court in and for Water Division No. 5.

Snowcap agrees to keep the Property and the demised premises free and clear from any and all liens for labor performed and for materials furnished to the Property or demised premises.

Snowcap shall notify the City by no later than the end of the next business day after an accident or incident that involved emergency medical services or law enforcement responding to the Property.

SECTION IX. INSPECTION

Snowcap warrants that it has thoroughly and carefully inspected the Property and demised premises and accepts the same in its present condition. Snowcap agrees that the condition of the Property is sufficient for the purposes of Snowcap. The City makes no warranties or promises that the Property is sufficient for the purposes of Snowcap.

SECTION X. CITY'S RIGHT OF ENTRY

The City, its officers, agents, and employees retain the right to be on the Property during emergencies and may inspect the Property at any time without notice.

**SECTION XI.
MINERAL RIGHTS**

The City retains and reserves for its sole use, lease, sale, or other disposition all oil, gas, coal and other minerals and mineral rights underlying or appurtenant to the Property, together with the rights of ingress and egress to and from the Property for the purpose of exploring, developing, mining, producing and removing any such minerals, oil, gas and coal. The City's exercise of rights related to the exploration, development, mining, producing, or removal of any such minerals, oil, gas, or coal shall not frustrate the purpose of this Lease. Frustration of purpose would include, without limitation, development or extraction activities that result in a modification of the watershed surrounding the Property.

**SECTION XII.
SURRENDER - HOLDING OVER**

Should Snowcap fail, for whatever reason, to vacate the premises at the end or when this Lease is terminated, Snowcap agrees to pay to the City the sum of \$100.00 per day for each and every day thereafter. The parties agree that it would be difficult to establish the actual damages to the City in such event and that said \$100.00 is an appropriate and agreed, liquidated damages amount.

Snowcap agrees that all fences, gates, fixtures and other improvements of a permanent nature constructed or installed on the Property during the term of this Lease, whether by City or Snowcap, shall be and remain the sole property of the City upon termination or expiration of this Lease.

**SECTION XIII.
DEFAULT**

Except as otherwise provided for herein, if Snowcap is in default in the performance of any term or condition of this Lease, the City shall provide Snowcap with a ninety (90) day notice to cure default. If Snowcap fails to timely remedy any default specified in the City's notice, the City shall have the right to terminate this Lease on ninety (90) days' notice.

Unless agreed in writing signed by the City, the City's failure at any time to require performance by Snowcap of any provision of this Lease shall not waive the City's right to subsequently enforce the same or any other provision or any other preceding or succeeding breach of any term or provision of this Lease. No extension of time for the performance of any obligation or act shall be deemed to be an extension of time for the performance of any other obligation or act under this Lease.

If this Lease is terminated by the City, Snowcap shall have reasonable access to the Property for a reasonable time, not to exceed thirty (30) days, to remove Snowcap's personal property. In the event site conditions prevent access to the Property during the thirty (30) days provided for above, Snowcap shall have thirty days to remove its personal property starting from the first day that site conditions allow access to the Property and the personal property located thereon.

Upon termination of this Lease, Snowcap shall remove all personal property from the Property and demised premises within thirty (30) days from the date of termination. If Snowcap fails to remove Snowcap's personal property within the time prescribed, the City shall not be responsible for the care and safekeeping thereof and may remove the same and store the same in a reasonable manner, the cost, expense and risk of which shall be Snowcap's. Snowcap hereby agrees that items not timely removed may be sold by the City to cover expenses with net proceeds after expenses paid to Snowcap. The City may also set off amounts owed under this Lease against proceeds of said sale.

SECTION XIV. ASSIGNMENT AND SUBLEASE

Snowcap is expressly authorized to assign this agreement to an affiliated entity either owned or operated by American Electric Power Company, Inc., a New York corporation, or its successors and assigns. Except as otherwise permitted by the preceding sentence, Snowcap shall not sublet, assign, or transfer any of Snowcap's interests in this Lease, or enter into any contract or agreement affecting Snowcap's interest in this Lease, without obtaining prior written approval of the City, which shall not be unreasonably withheld.

SECTION XV. DESTRUCTION

If the premises are damaged due to fire or other casualty, the City shall have no obligation to repair the improvements or to otherwise make the premises usable or occupiable; damages shall be at Snowcap's sole and exclusive risk. If the City determines not to perform repairs or to otherwise make the premises usable or occupiable, Snowcap may terminate this Lease by giving Snowcap's notice to the City that the Lease is terminated. The City may, however, at its election, apply the proceeds of any insurance obtained by Snowcap for this purpose, to repair the damaged improvements. If insurance proceeds are not sufficient to fully restore improvements, then the City may, instead of repairing, retain the proceeds.

**SECTION XVI.
HAZARDOUS SUBSTANCES**

Snowcap shall not use, store, generate, treat, transport, or dispose of any hazardous substances on the Property except for the use and storage of chemicals and materials such as petroleum-based products used in normal reservoir operations. The terms “hazardous substances” shall mean any substance defined, regulated, or banned by federal, state, or local laws or regulations which might result in liabilities or responsibilities under CERCLA, RCRA, the Clean Water Act, the Federal Water Pollution Control Act, or any other federal or state environmental protection statutes, laws or regulations. Snowcap’s use and storage of chemicals and materials such as petroleum-based products or any other product used in reservoir operations shall be in conformance with all manufacturer's instructions and all applicable federal state and local laws and regulations. Snowcap shall not dispose of such materials on the Property.

**SECTION XVII.
NO PARTNERSHIP**

It is expressly agreed that this Lease is a lease and not the formation or creation of a partnership or joint venture and the City shall not be or become responsible for any debts contracted or imposed by Snowcap.

**SECTION XVIII.
NOTICES**

All notices to be given with respect to this Lease shall be in writing delivered either by United States mail or Express mail, postage prepaid, personally by hand or courier service, as follows:

To the City:
City of Grand Junction
Utilities Director
333 West Avenue
Building E
Grand Junction, Colorado 81501

With Copy to:
City of Grand Junction
City Attorney
250 N. 5th Street
Grand Junction, Colorado 81501

To Snowcap:
J.E. Stover & Associates, Inc
Post Office Box 1430
Palisade, Colorado 81526

With Copy to:
Hoskin Farina & Kampf, P.C.
John Justus
Post Office Box 40
Grand Junction, Colorado 81501

All notices shall be deemed given: (a) if sent by certified mail, return receipt requested, when the receiving party signs for receipt of the certified mail; (b) if delivered by hand or courier service, when delivered. The parties may, by notice as provided above, designate a different address to which notice shall be given.

**SECTION XIX.
PARAGRAPH HEADINGS**

The titles to the paragraphs of this Lease are solely for the convenience of the parties and shall not be used to explain, modify, simplify, or aid in the interpretation of the provisions of this Lease.

**SECTION TWENTY-ONE
GOVERNING LAW**

This Lease shall be governed by, construed, and enforced in accordance with the laws of the State of Colorado. Venue for any action arising out of or under this Lease or the non-performance thereof shall be in the District Court, Mesa County, Colorado. If either party takes steps to enforce this Lease, the party in whose favor this Lease is enforced shall recover costs and attorneys' fees from the other party, whether or not litigation is commenced.

**SECTION XX.
INUREMENT**

The provisions of this Lease shall not inure to the benefit of the heirs, successors and assigns of the parties hereto. The obligation of the City to proceed with the terms and conditions of this Lease is expressly subject to the Council of the City approving and ratifying this Lease within thirty (30) days of execution of this Lease by the City Manager. If such approval is not obtained within said 30-day period, then this Lease shall be of no force and effect.


**SECTION XXI.
ADDITIONAL PROVISIONS**

The invalidity of any portion of this Lease shall not affect the validity of any other provision contained herein. In the event any provision of this Lease is held to be invalid, the remaining provisions shall be deemed to be in full force and effect as if they had been executed by both parties subsequent to the expungement of the invalid provisions.


IN WITNESS WHEREOF, each party to this Lease has caused it to be executed on the date indicated below.

ATTEST:

City of Grand Junction



Amy Phillips
City Clerk
Date



Greg Caton
City Manager
Date



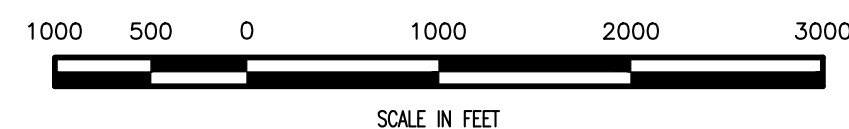
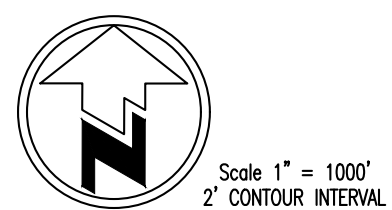
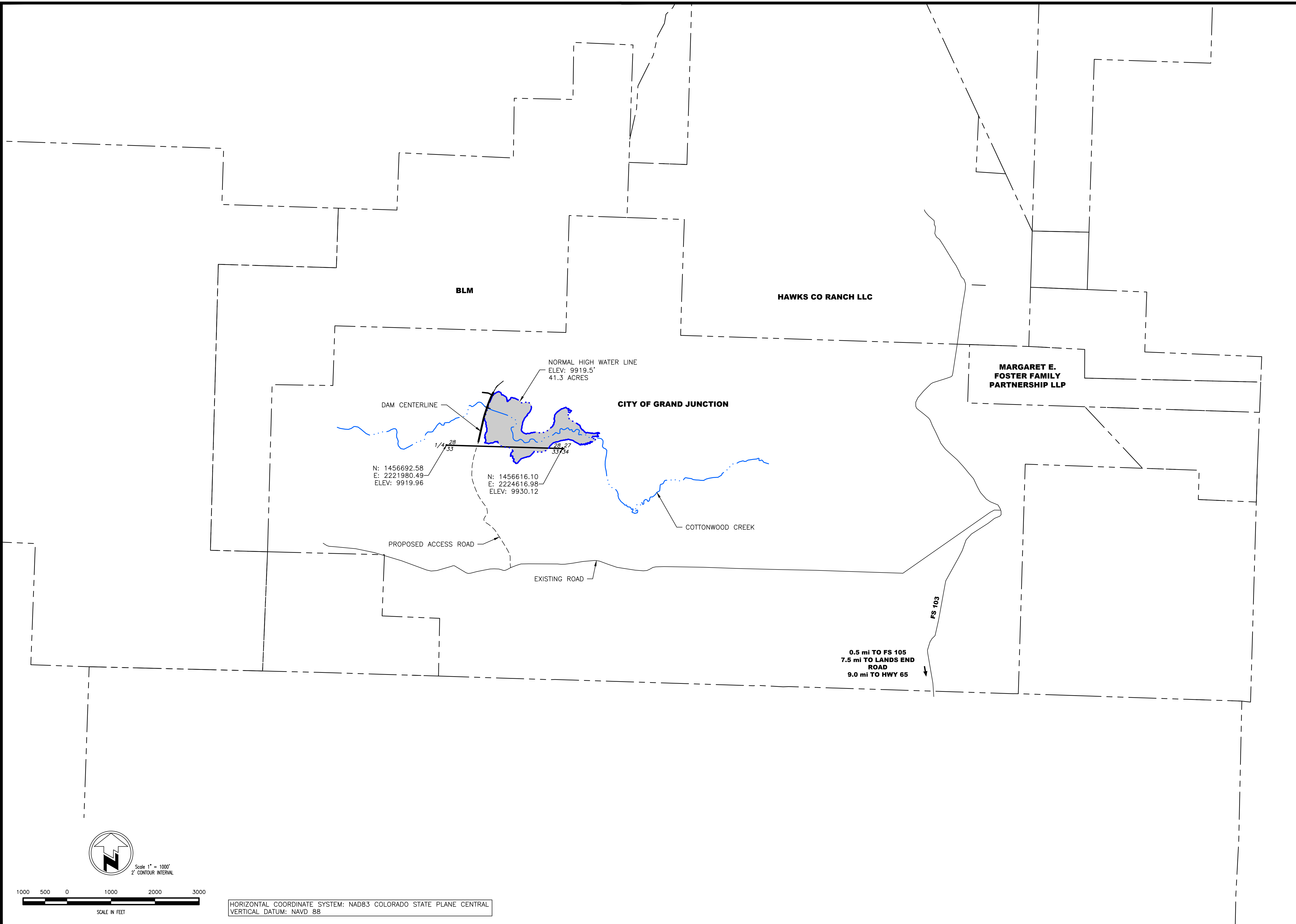
Showcap Coal Company, Inc.,
a Delaware Corporation

Mark J. Leskowitz

By: Mark J. Leskowitz Vice President

July 15, 2022

Exhibit A
Property Description



HORIZONTAL COORDINATE SYSTEM: NAD83 COLORADO STATE PLANE CENTRAL
 VERTICAL DATUM: NAVD 88

REVISIONS			
NO	DATE	BY	DESCRIPTION

Date: June 2022
 Job No: 21-115
 Drawn: TH
 Design: TD/CU
 Checked: CU
 Scale: AS SHOWN

Plot Date: 05/31/22-9452am; Plotted by:jimhorn; Drawing Path: N:\21115 Snowcap Coal Aug Study\Drawings\Plan_Sk\Vincent_2\Drawing_Name\Vincent_No2_Exhibit_A.dwg

Exhibit B
Snowcap and VanWinkle Sublease

SUBLEASE AGREEMENT

THIS SUBLEASE AGREEMENT (“Agreement”) is effective as of July 15, 2022, and is between VanWinkle Ranch LLC, a Colorado limited liability company, (“VanWinkle”) and Snowcap Coal Company, Inc., a Delaware corporation (“Snowcap”).

Recitals

A. VanWinkle Ranch LLC is the lessee of lands owned by the City of Grand Junction, a Colorado home rule municipal corporation (the “City”), pursuant to that certain Somerville Ranch and Anderson Ranch Lease dated effective May 1, 2020 (“VanWinkle Lease”). The VanWinkle Lease is attached as Exhibit A.

B. The VanWinkle Lease encompasses a vast number of acres and includes the location of the former Vincient No. 2 Reservoir a.k.a. Vincent No. 2 Reservoir (“Reservoir”) and Vincient No. 2 Dam a.k.a. Vincent No. 2 Dam, Dam ID: 720319 (“Dam”), which are generally located at on the South 1/2 Section 28 of Township 11 South, Range 97 West, Sixth Principal Meridian.

C. Snowcap plans to rehabilitate the Dam and Reservoir and lease the Reservoir and Dam from the City for a term longer than the VanWinkle Lease. Snowcap only intends to lease the Reservoir, Dam and the immediate land surrounding the same, as defined below.

D. VanWinkle desires to enter into this Agreement to sublease the Reservoir and Dam site to Snowcap and Snowcap desires to sublease the Reservoir and Dam site from VanWinkle.

NOW, THEREFORE, in consideration of the recitals, terms, covenants and conditions herein, the parties agree as follows:

1. Sublease. VanWinkle leases to Snowcap the property known as Vincient No. 2 Reservoir and the land directly surrounding it, which is more particularly described and depicted on the attached Exhibit B (the “Property”). For illustration purposes only, based on projections, the normal high-level mark of the Reservoir shall impact an area of approximately 41.3 acres and a maximum water level would impact an area of approximately 66.8 acres. If so desired, the parties can amend Exhibit B, by mutual agreement, with a surveyed description of the Property.

2. Term. The term of this Agreement shall run concurrent to the term of the VanWinkle Lease.

3. Rent. In consideration for the sublease of the Property, Snowcap shall:

- a. Allow VanWinkle access to the Property and Reservoir, once filled, for in place stock water use when Van Winkle has livestock on the property subject to the Van Winkle Lease. Van Winkle shall not otherwise pump or remove water from the Reservoir for any purpose.
- b. During rehabilitation of the Dam and Reservoir in 2022, subject to the City's approval, Snowcap shall reasonably clean out five (5) stock ponds located on the VanWinkle's leasehold. The stock ponds are depicted on the attached Exhibit C.

4. Rehabilitation and Clean Out. Snowcap or its contractors, agents, or representatives shall mobilize one time to the Property to rehabilitate the Dam. Snowcap anticipates mobilization and rehabilitation will take place in Summer and/or Fall of 2022. However, circumstances outside of Snowcap's control will dictate when Snowcap can mobilize to the Property. Snowcap's obligation under paragraph 3(b) shall only be performed once Snowcap has mobilized to the Property for rehabilitation purposes. Snowcap will attempt to give VanWinkle prior notice to it performing its obligation to clean out the five (5) stock ponds so that VanWinkle or its agent or representative can observe the clean out.

5. Access. Snowcap acknowledges the Property is encompassed by land owned by the City and leased by VanWinkles pursuant to the VanWinkle Lease. VanWinkle agrees to provide Snowcap reasonable access to the Property across its leased land for the term of this Agreement. Snowcap agrees to access the Property in a manner of least impact to VanWinkle's ranching operations, including closing gates, not disturbing cattleguards, and operating vehicles with care. VanWinkle and Snowcap agree that Snowcap shall access the Property on the route that is generally depicted on Exhibit C ("Access Route"). If site conditions prohibit access via the Access Route, Snowcap will use the best alternative route to access the Property in consideration of VanWinkle's operations.

6. Sublessee Obligations. Snowcap will be independently obligated by separate Agreement to the City for the maintenance and operation of the Property.

7. Purpose of Agreement. The purpose of this Agreement is for Snowcap to repair and rehabilitate, operate, fill, and maintain the Reservoir and Dam for water augmentation purposes pursuant to Colorado law and all subsequent orders of the State and Division Engineer for Water Division 5, and the District Court in and for Water Division 5.

8. Frustration of Purpose. If despite Snowcap's diligent efforts, it is unable to obtain necessary governmental approvals necessary to utilize the Reservoir to satisfy its obligations

under Colorado law and fulfill its purpose of this Agreement, including, but not limited to, failing to obtain decrees for approval of its augmentation plan or approval of this Agreement or any agreement by the City, Snowcap shall have the right to terminate this Agreement on sixty (60) days' notice. Likewise, if any governmental approval that is necessary for Snowcap to fulfill its purposes of entering this Agreement is unfavorably revised, revoked or otherwise canceled, despite Snowcap's best efforts to prevent the unfavorable revision, cancellation or revocation, Snowcap shall have the right to terminate this Agreement on sixty (60) days' notice.

9. Entire Agreement. This Agreement contains the entire agreement of the parties, and there are no representations, inducements or other provisions other than those expressed herein. This Agreement shall not be modified in any manner except by an instrument in writing executed by the parties or their respective successors in interest.

10. Benefit. This Agreement shall inure to the benefit of, and be binding upon, the parties hereto, their successors and assigns.

11. Notice. Any notice or document required or permitted to be delivered under the provisions of this Agreement shall be deemed to be delivered, whether actually received or not, when deposited in the United States mail, addressed to the parties at the respective addresses set forth below, or at such other address as they have specified by written notice:

VanWinkle: VanWinkle Ranch, LLC
Janie and Howard VanWinkle
2043 N Road
Fruita, Colorado 81521

Copy to: Dean VanWinkle
pitchforkcharolais@gmail.com

To Snowcap: J.E. Stover & Associates, Inc.
Post Office Box 1430
Palisade, Colorado 81526

Copy to: John Justus
Hoskin Farina & Kampf, P.C.
Post Office Box 40
Grand Junction, Colorado 81502

12. Captions. The captions are inserted in this Agreement for convenience only and in no way define, limit, or describe the scope or intent of this Agreement, or any provision hereof, nor in any way affect the interpretation of this Agreement.

13. Severability. If any clause or provision of this Agreement is subsequently determined to be illegal, invalid or unenforceable under present or future laws, then it is the intention of the parties hereto that the other terms and provisions of this Agreement shall not be affected thereby, except to the extent that the purpose of this Agreement is substantially defeated thereby.

14. Attorneys' Fees. If either party takes steps to enforce this Agreement, the party in whose favor this Lease is enforced shall recover costs and attorneys' fees from the other party, whether or not litigation is commenced.

15. Choice of Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Colorado. Venue for any action arising out of or under this Agreement or the non-performance thereof shall be in Mesa County, Colorado.

16. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which, taken together, shall be considered one legal document.

DATED the date first written above.

VanWinkle Ranch, LLC,
a Colorado limited liability company

By: Howard Van Winkle
July 8, 2022

Snowcap Coal Company, Inc.,
a Delaware Corporation

Mark J. Loskowitz
By: Mark J. Loskowitz Vice President
July 15, 2022

SOMERVILLE RANCH AND ANDERSON RANCH LEASE

THIS RANCH LEASE ("Lease" and/or "Agreement"), effective as of May 1, 2020, is by and between the City of Grand Junction, a Colorado home rule municipal corporation, hereinafter referred to as "City" and VanWinkle Ranch LLC, a Colorado Limited Liability Company, hereinafter referred to as "Lessee", whose address for the purpose of this Lease is 2043 N Road, Fruita, CO 81521.

SECTION ONE DEMISE

City is the owner of the real property described in the attached Exhibit A and generally depicted on an aerial photo in Exhibit C, both of which are incorporated herein by reference, commonly known as the Somerville and Anderson Ranches (Somerville Ranch appears in pink and Anderson Ranch appears in green in Exhibit C) and hereinafter referred to as the "Property", together with the Bureau of Land Management Grazing Permits, known as the Whitewater Common Allotment and the North Fork Allotment, hereinafter referred to collectively as the "BLM Permit".

City offers and VanWinkle Ranch LLC desires to lease the Property under the terms and conditions of this Lease.

NOW, THEREFORE, in consideration of the terms, covenants and conditions herein to be kept by the parties hereto, the City leases to Lessee the Property and the improvements situated thereon.

SECTION TWO BASIC TERM

The basic term of this Ranch Lease shall be for ten years, commencing on the 1st day of May, 2020, and terminating on the 30th day of April 2030.

For the purposes of this Lease, a "lease year" shall mean the period commencing on May 1 of each year during the term of this Lease and terminating on April 30 of the succeeding year.

If Lessee performs as required pursuant to this Agreement as outlined in Appendix A, *Performance Objectives*, and if the City chooses, at its sole option and discretion, to again lease the Property at the expiration of the basic term, the City hereby gives and grants to Lessee an option to extend this Lease an additional ten (10) year period ("second term"). If this Lease is so extended for an additional term, the lease terms shall be upon the same terms and conditions of this Agreement or upon other terms and conditions which may hereafter be negotiated between the parties. In order to exercise Lessee's option for an additional term, Lessee shall give written notice to the City of Lessee's desire and intention to exercise Lessee's option to extend not less than 365 days prior to the expiration of the basic term.

SECTION THREE
RENTAL

Lessee agrees to pay City, as rental for the Property, improvements and appurtenances, the sum of \$368,082.00. Payable as follows:

Lease Year	Total Due	May 1st Payment	December 1st Payment
2020	\$ 34,000	\$ 17,000	\$ 17,000
2021	\$ 34,596	\$ 17,298	\$ 17,298
2022	\$ 35,202	\$ 17,601	\$ 17,601
2023	\$ 35,818	\$ 17,909	\$ 17,909
2024	\$ 36,446	\$ 18,223	\$ 18,223
2025	\$ 37,084	\$ 18,542	\$ 18,542
2026	\$ 37,732	\$ 18,866	\$ 18,866
2027	\$ 38,392	\$ 19,196	\$ 19,196
2028	\$ 39,064	\$ 19,532	\$ 19,532
2029	\$ 39,748	\$ 19,874	\$ 19,874

Lessee may utilize one of the following options for making rental payments:

- a) Lessee may pay the amount due for each lease year in full on or before the payment due date for each lease year, or
- b) Lessee may make bi-annual payments which shall be computed by dividing the amount of the total rent due for each lease year by 2. In the event Lessee chooses to make payments on a bi-annual basis, said payments shall be due and payable, in advance and without demand, on or before the 10th day of May and December during the term of this Lease.

The first payment of \$34,000.00 shall be due and payable on or before May 1, 2020 or if the Lessee chooses the payment may be split with \$17,000.00 due on May 1, 2020 and the other \$17,000.00 shall be paid on or before December 1, 2020.

In the event rental payments are not received on or before the specified due dates, subject to the provisions of Section 13, this Lease shall terminate without notice and the City may immediately retake possession of the Property.

Lessee agrees to timely pay any and all real estate taxes and improvement assessments which may be levied against the Property, and any taxes or assessments levied against the crops, livestock and other personal property of Lessee or any other *leasehold interest acquired by Lessee under this Lease*. Lessee further agrees to pay any and all utilities, charges, and other expenses incurred in connection with Lessee's use and operation of the Property, including, but not limited to, all charges for natural gas, electricity, telephone and other utilities used on or in connection with the Property. Lessee

shall pay any such charges on or before the date the same become due. If Lessee fails to timely pay any and all amounts required pursuant to this Section 3, the City may pay such amounts and, in such event, the amount(s) paid by the City, plus interest thereon at the rate of 15% per annum, shall be added to the amount(s) of the rent due with the next rental payment and shall be payable to the City by Lessee.

SECTION FOUR RIGHT TO USE OF WATER

The City specifically retains and reserves from the Lease any and all water rights owned by the City, including, but not limited to, any water rights which may have been previously used on or in connection with the Property, for whatever purpose. Subject to the provisions of this Section 4, and Sections 5 and 9, Lessee has the right to use water as the City shall make available to Lessee for use on the Property. The City may, in its sole discretion, on or before the first day of May of each year, notify Lessee in writing of the amount of irrigation water (expressed in terms of cubic feet per second [C.F.S.] or acre feet) which may be available to Lessee to utilize on the Property during that lease year. Lessee shall exercise proper diligence to ensure that the amount of water so made available is utilized to its full extent on and solely for the benefit of the Property and Lessee's operations thereon.

Lessee shall utilize all water released to Lessee for the first and all subsequent lease years on the Property only, and shall do so in a prudent and careful manner in order to obtain the most efficient use of the water for irrigation of the Property and as stock water for livestock kept and maintained on the Property. Lessee shall comply with all rules, regulations and valid administrative orders applicable to the water provided under this Lease.

For the lease year beginning May 1, 2020, Lessee is hereby notified that it may utilize all of the water rights described in the attached Exhibit B. Exhibit B is incorporated by this reference as if fully set forth.

Lessee shall not be charged additional rent or fees for the use of water made available as herein described; provided, however, it shall be the sole responsibility of Lessee to divert and transport such water upon the lands included in this lease to its point of use.

By utilizing the water released to it by the City, Lessee agrees to waive and forego any claim, cause of action or demand Lessee may have against the City, its officers, employees and agents for injury to, or destruction of, any property, real and personal, including any livestock of Lessee or any third person that may be lost, injured, destroyed or devalued as a result of the act, or failure to act, or Lessee or any third person; and to indemnify the City, its officers, employees agents and to hold the City, its officers, employees and agents harmless from any and all claims, damages, actions, costs and expenses of every kind in any manner arising out of, or resulting from, Lessee's use or non-use of the water.

**SECTION FIVE
CULTIVATION – IRRIGATION – WEED CONTROL**

Lessee shall cooperate with and assist the City in developing and implementing long-range programs to ensure that the water and water rights associated with the Property are put to beneficial use on the Property. Lessee shall increase the use of the water historically adjudicated to the Property and improve efficiency of the application and use. Lessee shall, at Lessee's sole cost, provide the labor and capital necessary to improve crop production on the Property through the rehabilitation and maintenance of existing fields.

Lessee shall furnish, at Lessee's sole expense, all labor, seed and machinery during the term of this Lease, and shall plant, raise, cultivate, irrigate and thresh all crops grown on the demised premises at Lessee's own expense. Lessee shall be entitled to and responsible for all proceeds and debts and debt losses incurred and associated with all crops grown on the premises.

Lessee shall cultivate and irrigate the Property in a good and husbandry manner in accordance with the best methods of cultivation and irrigation practiced in Mesa County, Colorado.

Lessee agrees to cooperate and comply with all farm crop programs promulgated by the United States, the State of Colorado, and Mesa Conservation District.

The type and quantity of fertilizer, herbicides and other chemicals shall be selected with the advice and consent of the City.

Lessee shall be responsible for ensuring that the water is transported through clean irrigation ditches of adequate size to divert and transport such water upon the lands included in this lease to its point of use.

Lessee's right to use the water as described above shall be subject to the express conditions of this Section 5. If the City in its sole discretion, requires the use of some or all of the water described in this Lease notwithstanding prior notice to the contrary, the City has the right, upon 15 days written notice to Lessee, to use, transfer and possess all of the water described in this Lease at locations and for the purposes deemed necessary by the City, even though such purposes and locations are adverse to the needs and uses of Lessee. The City understands that Lessee considers 15 days short notice and will endeavor to give earlier notice when reasonably possible.

City shall be responsible for adjusting all head-gates in a manner that provides for releasing to the Property the proper amount of water that is adjudicated to, or may be beneficially applied for the benefit of, the Property. If requested by the City, Lessee shall record the dates and amounts of irrigation and the number of acres on which water is applied to adequately provide for the development of historic consumptive use records.

Under the City's direction and oversight, Lessee shall be responsible for: (a) measuring and recording water flow information at all weirs, flumes and other measuring and gauging devices, either now in place or installed in the future, and the amount of water being delivered to the Property during the irrigation season (April – October of each lease year); and (b) measuring, estimating and recording the return flow from irrigated fields while under irrigation.

Lessee shall be responsible for providing the labor and capital necessary to maintain existing ditches and laterals and for relocating ditches and laterals as determined by the operation plan referred to in Section 12.

Lessee shall be responsible for control and removal of all noxious weeds, Tamarisk and Russian Olive trees on the properties at Lessee's sole expense. Chemical, mechanical and natural control measures will be undertaken to ensure control and elimination of the invasive species. Each year weed and noxious plant control measures will be reviewed as part of the annual operation plan.

SECTION SIX TENANT COVENANTS

At Lessee's sole cost and expense, Lessee shall install, maintain and repair all fences and gates and shall ensure that all gates and fences upon the Property are properly installed and functioning. All fences shall be "lawful fences" as defined by Colorado law.

At Lessee's sole cost and expense, Lessee shall maintain and keep the Property and all improvements and buildings upon the Property, including, but not limited to, residence(s), dwelling(s), barn(s), shed(s), fixtures, roofing, plumbing, heating and ventilation systems, wiring, glass, fences, gates, wells and well systems, pumps and pump systems, septic systems, cattle guards and all other improvements on the Property, in the same or better condition as they were at the commencement of this Lease or, if improvements have been made, to the condition after improvement, all at Lessee's expense, and at the expiration of this Lease, surrender the Property and improvements thereon to City in as good a condition as when Lessee entered the Property, reasonable use and wear excepted.

Lessee shall keep the Property free from all litter, dirt, debris and obstructions, and shall not commit or permit to be committed any waste on the Property or demised premises. Lessee agrees that all uses shall be lawful uses only. No hazardous wastes shall be kept or discharged on the Property.

Lessee shall install no structural or land improvements without the prior written consent of the City, which consent shall not be unreasonably withheld.

Lessee agrees to waive and forego any claim, cause of action or demand Lessee may have against the City, its officers, agents and employees for injury to or destruction of

any property of Lessee or any third person that may be lost, injured, destroyed or devalued as a result of the act, or failure to act, of Lessee or any third person; and to indemnify the City, its officers, employees and agents and to hold the City, its officers employees and agents harmless from any and all claims, damages, actions, costs and expenses of every kind in any manner arising out of, or resulting from Lessee's use of the Property, not arising from the willful misconduct of the City.

Lessee agrees at Lessee's sole expense and during the term of this Lease, purchase and maintain in effect "Farmowner's Comprehensive" liability and hazard insurance which will protect the City, its officers, employees and agents and assets of the City, from liability in the event of loss of life, personal injury, or property damage suffered by any person or persons on, about or using the Property and a policy which insures the Property and all improvements thereon to the full insurable value. All required policies shall be from a company and in terms and amounts approved by the City. Such insurance shall not be cancelable without thirty (30) days prior written notice to the City and shall be written for at least a minimum of ONE MILLION DOLLARS (\$1,000,000.00), per occurrence for bodily injury, personal injury, and property damage, and \$1,000,000.00 in the aggregate. Comprehensive Automobile Liability insurance shall also be in place with minimum combined single limits for bodily injury of not less than \$500,000.00 for each individual and \$1,000,000.00 for each incident with property damage coverage of at least \$100,000.00. An accord form Certificate of insurance must be deposited with the City on or before May 1 of each year and must designate the City of Grand Junction, its officers, employees and agents as additional insureds. If a policy approved by the City is not at all times in full force and effect, this Lease shall automatically terminate.

Lessee shall comply with all Workers Compensation laws and provide proof of Workers Compensation insurance to the City. Said Workers Compensation insurance shall cover obligations imposed by applicable laws for any employee or person engaged in the performance of work on the Property.

Lessee agrees to use the property for ranching and farming operations only and conduct said operations in a proper and workmanlike manner and in a manner that will not over-graze or cause deterioration of or destruction to the Property.

Lessee agrees to keep the Property and the demised premises free and clear from any and all liens for labor performed and for materials furnished to the Property or demised premises.

Lessee shall immediately notify the City but no later than the end of the next business day of each accident or incident (including activities where law enforcement is involved) involving or occurring on the Property.

**SECTION SEVEN
USE OF BLM PERMIT AND CITY LANDS FOR GRAZING**

Lessee may maintain livestock on the BLM Permit and on City land. Lessee shall submit a grazing plan to City each year in an annual summary outlining the following years grazing plan. That plan shall include at a minimum, the area being grazed, number of cattle, date cattle on, date cattle off and calculated Animal Unit Months (AUM's). In such event, Lessee shall: cause each and every act to be done in order to maintain the BLM Permit in its current posture and in good standing; pay all fees associated therewith, and, be entitled to the benefits thereof, provided, however Lessee shall be required to maintain all projects associated therewith or incidental thereto and to do every other act to keep the BLM Permit in good standing. This Lease shall, at the option of the City, be terminated immediately should the BLM take any adverse action whatsoever against the BLM Permit.

Lessee shall act immediately to any Notice of Trespass by the City, BLM, Forest Service, Town of Palisade on lands and shall take all measures to remedy all causes of trespass, such as fence and gate repairs, gate closures, actions of the public. Certain ranch lands are of limited carrying capacity or are located on sensitive watershed areas, such as "The Bench" located below the rim of the Grand Mesa on the Somerville Ranch. The Bench is to be used for a limited time, not to exceed twenty days in the spring and eight days in the fall of each year, as a transit point to and from the top of Grand Mesa according to the Grazing Plan, which may be revised annually depending on range conditions. Water supplies are to be improved to ensure stock water at specific locations, reducing cattle access to the Town of Palisade Kruzen Springs Collection System. Spring locations are to be fenced or otherwise made inaccessible by cattle. Cattle remaining on "The Bench" after transit are to be removed as soon as possible.

In the event the City intends to transfer the BLM Permit to a third party during the term of the Lease, City shall notify Lessee including the terms of the transfer. Lessee shall have 30 days to notify the City of its interest to purchase such interest at the price and on the terms set forth in notice from the City. If Lessee elects to purchase such interest or fails to give notice in writing within the 30-day period, City shall be free to otherwise transfer the BLM Permit. If transfer to third party occurs, then the rental amount for the remaining term of the lease may be re-negotiated between the parties and shall become effective on the first day of the first month following completion of the Permit transfer. In the event the parties are unable to agree upon any amendment to rental fees pursuant to this Section 7 by the date aforesaid, then this Lease and Agreement shall automatically terminate, in which event Lessee shall have 30 days to surrender and deliver up the premises and deliver all keys peaceably to the City. Rent, and other sums due hereunder, shall accrue during such 30-day period and Lessee shall continue to abide by the several other obligations herein.

SECTION EIGHT INSPECTION

Lessee warrants that it has thoroughly and carefully inspected the Property and demised premises and accepts the same in its present condition. Lessee agrees that the condition of the Property is sufficient for the purposes of Lessee. The City makes no warranties or promises that the Property is sufficient for the purposes of Lessee.

SECTION NINE CITY'S RIGHT OF ENTRY

During the term of this Lease, Lessee shall have the exclusive right-of-way for ingress and egress, to and from the Property, subject to the provisions contained in this Section 9 and in Section 10.

The City, its officers, agents, and employees retain the right to be on the Property during emergencies and may inspect the Property at anytime without notice. The City, at its option, shall have the right to enter the Property to construct such facilities, as it deems necessary for the City to utilize water and water rights associated with and appurtenant to the Property for municipal or other use. Following such construction the City shall have the right to use said water rights or make them available to the Lessee, as the City deems appropriate.

The City grants to the Lessee all hunting rights concerning the Property as outlined by the terms and conditions of the Hunting Lease Agreement in Appendix B.

SECTION TEN MINERAL RIGHTS

The City retains and reserves for its sole use, lease, sale, or other disposition all oil, gas, coal and other minerals and mineral rights underlying or appurtenant to the Property, together with the rights of ingress and egress to and from the Property for the purpose of exploring, developing, mining, producing and removing any such minerals, oil, gas and coal.

SECTION ELEVEN SURRENDER – HOLDING OVER

Lessee shall, after the last day of the term of this Lease or any extension or upon earlier termination of this Lease, surrender to the City the Property in good order, condition and state of repair, reasonable wear and use excepted. Lessee shall execute all BLM documents required in order to accomplish a complete surrender of Lessee's interests in the BLM Permit.

Should Lessee fail, for whatever reason, to vacate the premises at the end or when this Lease is terminated, Lessee agrees to pay to the City the sum of \$100.00 per day for

each and every day thereafter. The parties agree that it would be difficult to establish the actual damages to the City in such event and that said \$100.00 is an appropriate and agreed, liquidated damages amount.

Lessee agrees that all fences, gates, fixtures and other improvements of a permanent nature constructed or installed on the Property during the term of this Lease, whether by City or Lessee, shall be and remain the sole property of the City upon termination or expiration of this Lease.

SECTION TWELVE OPERATION AND CAPITAL IMPROVEMENT PLANS – BI-ANNUAL REVIEWS

On or before the first day of July of each lease year, Lessee shall submit to the City Lessee's Capital Improvement Plan. That plan may in the City's sole discretion be extended from year to year or the City may require a new plan each year. Based upon the review of said plan and other budgetary issues the capital improvement plan may or may not be adopted for the following year. The Capital Improvement Plan is not the City's plan and the City has no responsibility under this Agreement to participate in any manner in a capital improvement on the Property.

On or before the 20th day of December of each lease year, Lessee shall submit to the City a livestock and irrigation report specifying, among other things, acreage irrigated amount of water utilized, diversion records, and the length of time irrigation water was applied and specifying the number and type of livestock grazed on the Property. Based upon the review of said report and other operational issues the operation plan may be amended for the succeeding lease years.

SECTION THIRTEEN DEFAULT

Except as otherwise provided for in Section 7, if Lessee is in default in the performance of any term or condition of this Lease, the City, may, at its option, terminate this Lease upon 30 days written notice. If Lessee fails within any such 30-day period to remedy any default specified in the City's notice, this Lease shall automatically terminate. If Lessee remedies such default, Lessee shall not thereafter have the right of 30 days (to remedy) with respect to a subsequent similar default, instead the Lease shall terminate upon the giving of notice by the City

Unless agreed in writing signed by the City, the City's failure at any time to require performance by Lessee of any provision of this Lease shall not waive the City's right subsequently to enforce the same or any other provision or any other preceding or succeeding breach of any term or provision of this Lease. No extension of time for the performance of any obligation or act shall be deemed to be an extension of time for the performance of any other obligation or act under this Lease.

This Lease shall automatically terminate in the event Lessee: becomes insolvent; is subject to a bankruptcy filing whether or not voluntary or involuntary; is subject to an assignment for the benefit of creditors or if a receiver is appointed; if Lessee fails in any manner to comply with any of the terms, covenants, or conditions of this Lease to be kept and performed by Lessee; or should Lessee, by any act of negligence or carelessness, or through any act of commission or omission permit, or suffer to be permitted, damage to the Property or the demised premises in any substantial manner.

If this Lease is terminated by the City, except termination due to expiration of the lease term, Lessee shall have reasonable access to the Property for a reasonable time, not to exceed 30 days, to remove Lessee's personal property.

Upon termination of this Lease, Lessee shall remove all personal property and livestock from the property and demised premises within 30 days from the date of termination. If Lessee fails to remove Lessee's personal property and livestock within the time prescribed, the City shall not be responsible for the care and safekeeping thereof and may remove the same and store the same in a reasonable manner, the cost, expense and risk of which shall be Lessee's. Lessee hereby agrees that items not timely removed may be sold by the City to cover expenses with net proceeds after expenses paid to Lessee. The City may also set off amounts owed under this Lease against proceeds of said sale.

SECTION FOURTEEN MEMBERS IN LIMITED LIABILITY COMPANY AND SUBLEASE

The City is entering into this Lease with VanWinkle Ranch LLC with the knowledge and reliance that Howard VanWinkle and Janie VanWinkle are the only members of the limited liability company. If the number of members or the members themselves change within the limited liability company, the City may terminate this Lease immediately or as soon thereafter as the City determines in its discretion appropriate. The City agrees that Janie and Howard VanWinkle's son, Dean VanWinkle may be included as a member of the limited liability company.

Lessee shall not sublet, assign or transfer any of Lessee's interests in this Lease, or enter into any contract or agreement affecting Lessee's interest in this Lease, without obtaining prior written approval of the City. The City may in its sole discretion withhold consent to subletting, assigning or transfer.

SECTION FIFTEEN DESTRUCTION

If the premises are damaged due to fire or other casualty, the City shall have no obligation to repair the improvements or to otherwise make the premises usable or occupiable; damages shall be at Lessee's sole and exclusive risk. If the City determines not to perform repairs or to otherwise make the premises usable or occupiable, Lessee may terminate this Lease by giving Lessee's notice to the City that the Lease is terminated. The City may, however, at its election, apply the proceeds of any insurance

obtained by Lessee for this purpose, to repair the damaged improvements. If insurance proceeds are not sufficient to fully restore improvements, then the City may, instead of repairing, retain the proceeds.

SECTION SIXTEEN HAZARDOUS SUBSTANCES

Lessee shall not use, store, generate, treat, transport or dispose of any hazardous substances on the Property except for the use and storage of pesticides, fertilizers and materials such as petroleum-based products used in normal farming and ranching operations. The terms "hazardous substances" shall mean any substance defined, regulated, or banned by federal, state, or local laws or regulations which might result in liabilities or responsibilities under CERCLA, RCRA, the Clean Water Act, the Federal Water Pollution Control Act, or any other federal or state environmental protection statutes, laws or regulations. Lessee's use and storage of pesticides, fertilizers, and materials such as petroleum-based products used in normal farming and ranching operations shall be in conformance with all manufacturer's instructions and all applicable federal, state and local laws and regulations. Lessee shall not dispose of such pesticides, fertilizers, and materials such as petroleum-based products used in normal farming and ranching operations on the Property.

SECTION SEVENTEEN PARTNERSHIP – TAXES

It is expressly agreed that this Lease is a lease and not the formation or creation of a partnership or joint venture and the City shall not be or become responsible for any debts contracted or imposed by Lessee. Lessee shall save, indemnify and hold the City, its officers, employees and agents harmless against all liability or loss, and against all claims or actions based upon or arising out of any claim, lien, damage or injury, (including death), to persons or property caused by Lessee or sustained in connection with the performance of this Lease or by conditions created thereby, or based upon any violation of any statute, ordinance, code or regulation, and the defense of any such claims or actions, including attorney's fees. Lessee shall also pay and indemnify the City of Grand Junction, its officers, employees and agents against all liability and loss in connection with, and shall assume full responsibility for payment for all federal, state and local taxes or contributions imposed or required under unemployment insurance, social security and income tax laws, with respect to employees engaged in performance of this Lease.

SECTION EIGHTEEN CITY'S RIGHT TO BUYOUT

In the event the City determines to sell the property or to utilize it for other municipal purposes, other than to lease it for another agricultural operation, the City may, upon expiration of the fourth lease year April 30, 2024 and thereafter anytime during the remaining six years, have the right to terminate this lease by giving two years advanced written notice. In such event, Lessee shall be compensated in an amount equal to one-

half the annual rent for the lease year in which the Lease is terminated. In the event this Lease is terminated pursuant to Section 13, Lessee shall have reasonable access to the Property for a reasonable time, not to exceed 30 days, to remove Lessee's personal property.

SECTION NINETEEN NOTICES

All notices to be given with respect to this Lease shall be in writing delivered either by United States mail or Express mail, postage prepaid, personally by hand or courier service, as follows:

To the City:

City of Grand Junction
Utilities Director
333 West Avenue
Building E
Grand Junction, CO 81501

With Copy to:

City of Grand Junction
City Attorney
250 N. 5th Street
Grand Junction, CO 81501

To Lessee:

Vanwinkle Ranch LLC
c/o Janie VanWinkle
2043 N Road
Fruita, CO 81521

All notices shall be deemed given: (a) if sent by mail, when deposited in the mail; (b) if delivered by hand or courier service, when delivered. The parties may, by notice as provided above, designate a different address to which notice shall be given.

SECTION TWENTY PARAGRAPH HEADINGS

The titles to the paragraphs of this Lease are solely for the convenience of the parties and shall not be used to explain, modify, simplify, or aid in the interpretation of the provisions of this Lease.

SECTION TWENTY-ONE GOVERNING LAW

In the event the City uses its City Attorney or engages an attorney to enforce the City's rights hereunder, Lessee agrees to pay for the value or cost of such attorney fees, plus costs, including the costs of any experts. In the event a court of competent jurisdiction deems such previous sentence to be unenforceable, then the parties agree that each party shall pay for such party's own attorney fees unless such party has been determined to have acted in bad faith or frivolously. This Lease shall be governed by, construed, and enforced in accordance with the laws of the State of Colorado. Venue for

any action arising out of or under this Lease or the non-performance thereof shall be in the District Court, Mesa County, Colorado.

SECTION TWENTY-TWO
INUREMENT

The provisions of this Lease shall not inure to the benefit of the heirs, successors and assigns of the parties hereto. The obligation of the City to proceed with the terms and conditions of this Lease is expressly subject to the Council of the City approving and ratifying this Lease within thirty (30) days of execution of this Lease by the City Manager. If such approval is not obtained within said 30-day period, then this Lease shall be of no force and effect.

SECTION TWENTY-THREE
ADDITIONAL PROVISIONS

The invalidity of any portion of this Lease Agreement shall not affect the validity of any other provision contained herein. In the event any provision of this Agreement is held to be invalid, the remaining provisions shall be deemed to be in full force and effect as if they had been executed by both parties subsequent to the expungement of the invalid provisions.

IN WITNESS WHEREOF, each party to this Lease has caused it to be executed on the date indicated below.

ATTEST:

CITY OF GRAND JUNCTION

Wanda Winkelmann 05/07/2020
City Clerk Date

Greg Caton 5/7/2020
City Manager Date



LESSEE:

LESSEE:

VanWinkle Ranch LLC

VanWinkle Ranch LLC

Howard VanWinkle 4/21/20
Howard VanWinkle Date
Member of VanWinkle Ranch LLC

Jamie VanWinkle 4/21/2020
Janie VanWinkle Date
Member of VanWinkle Ranch LLC

EXHIBIT A to that certain Ranch Lease dated the _____ day of May, 2020, by and between the City of Grand Junction, a municipal corporation, and VanWinkle Ranch LLC

SOMERVILLE RANCH

TOWNSHIP 1 SOUTH, RANGE 2 EAST, UTE MERIDIAN

- Section 20: NW1/4 SE1/4 SW1/4 and the S1/2
EXCEPT SW1/4 SW1/4
AND EXCEPT NW1/4 SE1/4 SW1/4.
- Section 21: E1/2 SW1/4, SE1/4 NW1/4 and N1/2 NW1/4.
- Section 22: S1/2 NE1/4, SE1/4, N1/2 SE1/4 SW1/4,
SE1/4 SE1/4 SW1/4, and E1/2 SW1/4 SE1/4
SW1/4.
- Section 23: E1/2 SW1/4, NW1/4 SW1/4, E3/4 SW1/4 NW1/4 and
W1/2 SE1/4.
- Section 26: N1/2 SW1/4, SW1/4 SW1/4 and S1/2 NW1/4.
- Section 27: ALL
EXCEPT NE1/4 NE1/4
AND EXCEPT SW1/4 SE1/4 and S1/2 SW1/4.
- Section 28: SE1/4 SW1/4 SW1/4, NE1/4 NE1/4, S1/2 NE1/4,
E1/4 NW1/4 NE1/4, SW1/4 NW1/4, W1/2 NE1/4
NW1/4 and S1/2
EXCEPT SE1/4 SW1/4 SW1/4 SW1/4
- Section 29: SE1/4 NE1/4.
- Section 33: N1/2 NE1/4
- Section 34: ALL,
EXCEPT NE1/4 SW1/4 NE1/4, SW1/4 SW1/4 and
W1/2 NW1/4.
- Section 35: S1/2 NE1/4, N1/2 SE1/4, SE1/4, SE1/4, NE1/4
SW1/4, SE1/4 NW1/4 and W1/2 NW1/4.
- Section 36: SW1/4 NW1/4 and SW1/4

TOWNSHIP 2 SOUTH, RANGE 2 EAST, UTE MERIDIAN

- Section 1: SE1/4NE1/4, SW1/4 NE1/4, S1/2, NW1/4 NW1/4, and S1/2
NW1/4.
- Section 2: NE1/4 SE1/4 and S1/2 SE1/4.
- Section 8: NW1/4 SE1/4 and SW1/4 NE1/4.
- Section 9: NE1/4 SE1/4.
- Section 10: NW1/4SE1/4, SW1/4SW1/4, S1/2 NE1/4, NE1/4 SE1/4, N1/2
SW1/4, S1/2SE1/4 and SE1/4 NW1/4.



City



Lessee

EXHIBIT A (Continued)

Section 11: NE1/4, N1/2 SE1/4, N1/2 SW1/4, S1/2 NW1/4,
S1/2 SE1/4 and S1/2 SW1/4.

Section 12: N1/2.

Section 15: W1/2NW1/4

Section 17: W1/2 NE1/4 and N1/2, NW1/4.

TOWNSHIP 11 SOUTH, RANGE 97 WEST, SIXTH PRINCIPAL MERIDIAN

Section 19: S1/2 SE1/4, SE1/4 SW1/4 and Lot 4.

Section 20: S1/2 SW1/4.

Section 25: S1/4,
EXCEPT S1/2 SE1/4 and 1/2 of the SE1/4 SW1/4
Lying North and East of a diagonal line
Running from the Northwest corner to the
Southeast corner of said SE1/4 SW1/4.

Section 26: SE1/4 SE1/4, W1/2 SE1/4 and SW1/4.

Section 27: W1/2 SE1/4/

Section 28: S1/2

Section 29: N1/2 NE1/4, SE1/4 SE1/4 and W1/2.

Section 30: E3/4.

Section 31: NE1/4 and E1/2 SE1/4.

Section 32: E1/2 NE1/4, W1/2 SE1/4 and W1/2.

Section 33: N1/2, NE1/4 SW1/4 and SE1/4.

Section 34: ALL.

Section 35: ALL.

TOWNSHIP 12 SOUTH, RANGE 97 WEST, SIXTH PRINCIPAL MERIDIAN

Section 30: Lots 11, 13, 14

TOWNSHIP 12 SOUTH, RANGE 98 WEST, SIXTH PRINCIPAL MERIDIAN


Section 12: Lot 13

Section 13: Lot 4

Section 14: Lots 2, 3 and 5

Section 25: SE1/4SE1/4

 City

 Lessee

THE PROPERTY IS SUBJECT TO THE FOLLOWING LEASES:

1. Lease of a 30-foot road right-of-way for ingress and egress to Rocky Mountain Gas Company by instrument recorded August 21, 1975 in Book 1044 at Page 209. This lease affects Sections 25, 26, 35 and 36, Township 11 South, Range 97 West, Sixth Principal Meridian, Mesa County, Colorado.
2. Lease to Pikes Peak Broadcasting Company, a Colorado Corporation, for Purpose of installing and maintaining a television and radio broadcasting antenna and tower with an easement for ingress and egress, recorded December 10, 1979 in Book 1234, Page 293. This lease affects Sections 32, 33, 34, 35 and 36, Township 11 South, Range 97 West, Sixth Principal Meridian, Mesa County, Colorado.
3. Lease to Kenneth Johnson for a term of 50 years for a cabin together with the right of ingress and egress, recorded, recorded May 1, 1972 in Book 975, Page 965. This lease affects the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 27, and the E $\frac{1}{2}$ of Section 35, Township 11 South, Range 97 West, Sixth Principal Meridian, Mesa County, Colorado, Township 11 South Range 97 West, Sixth Principal Meridian. Mesa County, Colorado.
4. Lease to the United States of America acting through the Bureau of Reclamation, Department of the Interior, for the purpose of ingress and egress to radio repeater station site, recorded September 19, 1988 in Book 1715, Page 690. This lease affects the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 25, SE $\frac{1}{4}$. This lease affects the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 25, SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 26
5. Lease to the U.S. Department of Transportation Federal Aviation Administration for a road right-of-way, 30 feet in width, across sections 26, 27, 34, and 35, Township 11, South Range 97 West, of the 6th Principle meridian, Mesa County, Colorado.

ANDERSON RANCH

Township 2 South, Range 2 East, Ute Meridian:

- Section 13: The South $\frac{1}{2}$ of the South $\frac{1}{2}$;
Section 23: The NE $\frac{1}{4}$ of the NE $\frac{1}{4}$;
Section 24: The North $\frac{1}{2}$; AND ALSO, the North $\frac{1}{2}$ of the South $\frac{1}{2}$.

Township 12 South, Range 98 West, 6th P.M.:



- Section 24: The SW $\frac{1}{4}$ of the SE $\frac{1}{4}$;
Section 25: The NW $\frac{1}{4}$; The NW $\frac{1}{4}$ of the NE $\frac{1}{4}$; AND ALSO,
that part of the SW $\frac{1}{4}$ of Section 25 described as Beginning at the Southwest corner of said Section 25; thence S 89°37' E 335.60 feet; thence N 35°17' E 1586.60 feet; thence N 33°28' E 1600.00 feet to a point on the North line of said SW $\frac{1}{4}$; thence West to the West $\frac{1}{4}$ corner of said Section 25; thence S 00°09' E along the West line of the SW $\frac{1}{4}$ to the Point of Beginning;
Section 26: Lots 1, 2, 3 and 4;
Section 35: Lots 1 and 2.

 City
 Lessee

EXHIBIT B to that certain Ranch Lease dated the _____ day of May, 2020, by and between the City of Grand Junction, a Colorado home rule municipal corporation, and VanWinkle Ranch LLC.

SOMERVILLE RANCH

Name	DIRECT FLOWS			
	Decreed Source	Amount	Adjudication Date	Appropriation Date
ADA	Whitewater Creek	3.60 cfs	6-01-16	10-17-07
ADA	Whitewater Creek	7.20 cfs Conditional	6-01-16	10-17-07
Brandon Ditch Enlarged	Whitewater Creek	3.80	7-21-59	6-01-00
Brandon Ditch 2 nd Enlargement	Whitewater Creek	24.80	7-21-59	4-15-40
Evers Ditch	Whitewater Creek	0.53 cfs	2-07-90	6-30-83
Guild Ditch No. 1	Whitewater Creek	1.08 cfs	6-01-16	5-14-09
Guild Ditch No. 1	Whitewater Creek	6.84 cfs Conditional	6-01-16	5-14-09
Guild Ditch No. 2	Whitewater Creek	1.08 cfs	6-01-16	5-14-09
Guild Ditch No.2	Whitewater Creek	6.84 cfs	6-01-16	5-14-09
Gulch Ditch	Whitewater Creek	0.36	2-07-90	10-18-87
Orchard Mesa Ditch	Whitewater Creek	0.36	2-07-90	1-05-87
Pioneer of Whitewater	Whitewater Creek	3.55 cfs.	2-07-90	8-09-84


 _____ City

 _____ Lessee

RESERVOIRS

<u>Name</u>	<u>Decreed Source</u>	<u>Amount</u>	<u>Adjudication Date</u>	<u>Appropriation Date</u>
Somerville Reservoir	Whitewater Creek	837.00af	7-21-59	7-19-45

MISCELLANEOUS

<u>Name</u>	<u>Decreed Source</u>	<u>Amount</u>	<u>Adjudication Date</u>	<u>Appropriation Date</u>
Somerville Ranch Irrigation System	Whitewater Creek	3.00 cfs	3-13-71	6-01-82

ANDERSON RANCH

Anderson Ranch will have all of the direct flow from the North Fork of Kannah Creek during the irrigation season (April through October).

Thereafter, winter stock water use will be from the Kannah Creek flow line at the stock tanks.

Water from storage will be determined on or before the 1st day of June and the Lessee notified.

GC City

H.K. Lessee

Somerville and Anderson Ranch Leases



tabbles
C
EXHIBIT



Date: 12/16/2019

1 inch = 6,019 feet




Appendix A


Somerville and Anderson Ranch lease:

Performance Objectives:

General

1. Lessee will utilize the public and private lands for grazing as appropriate and as outlined in the annual grazing plan submitted to City each December. Cattle trespass situations on US Forest Service lands or BLM lands shall be dealt with promptly. Failure to respond within a 48-hour period after receiving notification of a trespass situation may result in notice to the Lessee of forfeiture of the lease as outlined in Section 13 of this Lease. Close attention to this term is necessary to retain the BLM grazing permit in the Whitewater Common Allotment and to prevent contamination within the Town of Palisade's watershed near Kruzen Springs. Losses of either of these two areas as a result of inadequate cattle management will devalue the City's use and enjoyment of its lands.
2. Water available to City lands, either by *direct* flow or *stored* water, will be utilized by the Lessee to the fullest extent possible, not wasted. Return flows from City lands will be minimized to the extent possible. Flows will be measured where weirs are installed and recorded by the Lessee as flows change at the head-gates to ditches feeding City lands and in the laterals feeding various irrigated pastures. This usage will be recorded in a manner directed by the City when requested. This data will be subject to review at the management meeting held on or before the first day of November of each year between the City Utility Department and the Lessee. Water conservation practices and improvements are important for the Lessee to undertake as, from time to time, water will be removed from ranch lands for other decreed purposes.
3. The Lessee is responsible for improvements to leased properties as stated in the Lease. Work of a permanent nature either to buildings or land is subject to City approval. This includes but is not limited to new roads, new fences, new ditches, woodcutting and drainage improvements. These can be discussed at the bi-annual meetings or at other times arranged between the City and the Lessees.
4. Subleases to or use of City buildings by individual(s), other than the Lessee, must be approved in advance by the City Utility Department. Reimbursements for the sublease, either monetarily or in exchange for services, must be approved by the City.
5. Lessee will utilize the National Resources Conservation Service (NRCS) and will take advantage of appropriate land and water programs available through NRCS. Permanent land and water projects, proposed by the Lessee, will be reviewed for funding from NRCS.


____ City


____ Lessee

APPENDIX B

HUNTING LEASE AGREEMENT

THIS HUNTING LEASE AGREEMENT ("Lease" or "Agreement") is made by and between the City of Grand Junction, a Colorado home rule municipality, hereinafter referred to as "the City", and VanWinkle Ranch LLC, hereinafter referred to as "the Lessee".

RECITALS:

A. The City is the owner of real property situated in Mesa County Colorado, commonly known as the Somerville and Anderson Ranches' and hereinafter referred to as "the Property".

B. The Lessee desires to lease the exclusive hunting rights on the Property under the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the terms, promises, covenants and conditions herein specified, the parties hereto mutually agree as follows:

1. The City hereby leases to the Lessee the exclusive right to conduct private hunting activities on the Property. The term of this Lease shall commence with the 2020 game hunting season as defined by the Colorado Parks and Wildlife ("the CPW") and terminate upon expiration of the 2029 game hunting season as defined by the CPW.

2. The Lessee agrees to pay to the City as rental for rights granted under this Lease a sum of money which represents twenty percent (20%) of the total fees paid to the Lessee from hunters using and occupying the Property. Said sums of money shall be due and payable to the City in annual installments on or before ten (10) days following the conclusion of the hunting season as defined by the CPW.

3. The Lessee or the Hunting Client, defined below, shall at all times during this Lease secure and maintain in effect all licensing and registration requirements of the Colorado Office of Outfitters Registration, if any. In the event the Lessee or Hunting Client fails to be or become licensed and registered with the Colorado Office of Outfitters Registration when required, or if the Lessee's or Hunting Client's license to provide outfitting services is revoked, for whatever reason, then this Lease shall automatically terminate. It is Lessee's responsibility to ensure that the Hunting Client is licensed and registered if the Lessee is not and its required by law.

4. The Lessee agrees to:

a. Use reasonable care in the use of the Property and to keep the Property free from all litter, debris, human waste, and to provide sanitary human waste facilities on the "Bench" and "Cow Camp" on the Somerville Ranch agreed upon by the City and maintain said facilities in a manner that will not allow human waste to remain upon the surface of the ground or to enter into any water course or water way, including, but not limited to, streams, creeks, ponds, springs, ditches and reservoirs.

b. Waive and forego any claim, cause of action or demand the Lessee may have against the City, its officers, employees and agents, for injury to or destruction of any property of the Lessee or any third party which may be lost, injured, damaged, destroyed or devalued as a result of the act, or failure to act, of the Lessee or any third party; and to indemnify the City, its officers, employees and agents, and to hold the City, its officers, employees and agents, harmless from any and all claims, damages, actions, personal injury (including death), costs and expenses of every kind in any manner arising out of or resulting from the Lessee's use of the Property.

c. Not use the Property for any purpose which is prohibited by the laws of the United States of America, the State of Colorado, the County of Mesa or any other governmental agency having control, jurisdiction or authority over the Property and the Lessee's use thereof. The Lessee agrees to comply with all police, fire and sanitary regulations imposed by any governmental agency either now in force or hereinafter enacted, and to not use the Property for any improper or questionable purposes whatsoever.

d. At the Lessee's sole expense and during the term of this Lease, purchase and maintain in effect suitable Comprehensive General Liability Insurance which will protect the Lessee and the City, its officers, employees and agents from liability in the event of loss of life, personal injury, or property damage suffered by any person or persons on, about or using the Property. Such insurance shall not be cancelable without thirty (30) days prior written notice to the City and shall be written for at least a minimum of \$500,000.00, combined single limit. The certificate of insurance must be deposited with the City and must designate the City of Grand Junction, its officers, employees and agents as additional insureds.

e. Comply with all Workers Compensation laws and, if required by such Workers Compensation laws, provide proof of Workers Compensation insurance to the City. Said Workers Compensation insurance shall cover obligations imposed by applicable laws for any employee engaged by Lessee in the performance of work on the Property.

f. Coordinate the Lessee's activities with the CPW to ensure that the harvest of animals will not exceed the harvest objectives of the CPW.

g. Restrict open campfires and smoking to locations which are acceptable to the City or which meet regulations outlined by Mesa County, Bureau of Land Management, or U.S. Forest Service during times of extreme fire hazard.

h. Provide the City an accurate accounting annually of the amount(s) and type(s) of animal(s) harvested during each season, within ten (10) days following the conclusion of the hunting season as defined by the CPW.

i. Prior to any third party using or occupying the Property for hunting purposes (hereinafter "hunting client"), the Lessee shall obtain for the City a waiver, hold harmless and indemnity agreement prepared by the City and executed by each of the Lessee's hunting clients which provides that each such hunting client agrees to waive and forego any claim, cause of action or demand that each such hunting client may have against the City, its officers, employees and agents, for injury to or destruction of any property of the Lessee's hunting clients which may be lost, damaged, destroyed or devalued as a result of the act, or failure to act, of the Lessee, the Lessee's hunting clients or any third party; and to indemnify the City, its officers, employees and agents and to hold the City, its officers, employees and agents harmless from any and all claims, damages, actions, personal injury (including death), costs and expenses of every kind in any manner arising out of or resulting from the use of or presence on the Property by the Lessee's hunting clients. (See "Appendix C").

5. The Lessee represents that it is familiar with the Property and its boundaries and accept the same in its present condition; The Lessee agrees that the condition of the Property is sufficient for the purposes of the Lessee. The City makes no warranties, representations or promises that the Property is sufficient for the purposes of the Lessee. The Lessee agrees that its use of the Property shall be at the Lessee's own risk; the City shall not be responsible or liable for the success of the Lessee's operation or the loss of profits or opportunities.

6. The Lessee shall endeavor to cause all of its employees and hunting clients to at all times conduct themselves in a proper and responsible manner.

7. The Lessee shall, during the term of this Lease, have the exclusive right to remove trespassers from the Property; provided, however, that the Lessee acknowledges that its exercise of said right shall be at the Lessee's own risk; provided, further, that the Lessee acknowledges that the City, its officers, employees and agents, shall have the right to be on the Property during the term of this Lease and may inspect the Property and the Lessee's occupancy thereof at any time.

8. Notwithstanding anything herein to the contrary, if the Lessee is in default in the performance of any term or condition of this Lease, the City may, at its option, terminate this Lease upon giving three (3) days advanced written notice. If the Lessee fails within any such three (3) day period to remedy each and every default specified in the City's notice, this Lease shall automatically terminate. If the Lessee remedies such default(s), the Lessee shall not thereafter have the right to cure or remedy within three (3) days with respect to the same default(s), but rather, the Lessee's rights under this Agreement shall, with respect to subsequent similar default(s), automatically terminate upon the giving of written notice by the City.

This Lease shall automatically terminate in the event the Lessee: becomes insolvent; is subject to a bankruptcy filing whether voluntary or involuntary; is subject to an assignment for the benefit of creditors or if a receiver is appointed; a member(s) should suffer death or become disabled to the extent that would preclude the Lessee from fulfilling each and every term and condition under this Agreement; fail in any manner to comply with any of the terms, covenants or conditions of this Lease (to be kept and performed by the Lessee); or should the Lessee, its employees or agents, by any act of negligence or carelessness, or through any act of commission or omission permit, or suffer to be permitted, damage(s) to the Property in any substantial manner. In such event, the City may immediately retake possession of the Property and the Lessee agrees that prior monies received by the City shall be retained by the City. The Lessee further agrees that the City shall have the right to sue for the balance of payments not received, to lease the hunting rights on the Property to a third party, and any other lawful remedy.

If this Lease is terminated by the City, except termination due to the expiration of the Lease term, the Lessee shall have reasonable access to and from the Property for a reasonable time, but not to exceed thirty (30) days, to remove the Lessee's personal property. If the Lessee fails to remove the Lessee's personal property within said thirty (30) day period, the City shall not be responsible for the care and safekeeping thereof and may, at its option, remove and store the same in a safe and reasonable manner, the cost, expense and risk of which shall be borne by the Lessee. The Lessee agrees that items not timely recovered by the Lessee may be sold by the City to cover expenses, with net proceeds after expenses paid to the Lessee. The City may, at its option, set off amounts owed under this Lease against the proceeds of said sale.

9. The Lessee shall not sublet, assign or transfer any of its interest in this Lease, or enter into any contract or agreement affecting the Lessee's interests in this Lease without obtaining the prior written approval of the City. The City is entering into this Lease with VanWinkle Ranch LLC with the knowledge and reliance that Howard VanWinkle and Janie VanWinkle are the only members of the limited liability company. If the number of members or the members themselves change within the limited liability company, the City may terminate this Lease immediately or as soon thereafter as the City determines in its discretion appropriate. *The City agrees that Janie and Howard VanWinkle's son, Dean VanWinkle may be included as a member of the limited liability company.*

10. The Lessee acknowledges that the Property is bordered in part by private and federally owned lands. Any liabilities arising from the Lessee, its employees and hunting clients entering, trespassing, or in any way damaging properties of any other party shall be the responsibility of the Lessee. Lessee will provide employees and hunting clients with instructions and maps showing the approved property and hunting boundaries. Trespass by Lessee or clients on lands not approved for hunting will be cause for termination of this Lease.

11. It is expressly agreed that this Agreement is one of lease and not of partnership. The City shall not be or become responsible for the success or failure, profit or loss of profits, loss of opportunities, or any debts contracted by the Lessee. The Lessee shall save, indemnify and hold the City, its officers, employees and agents, harmless against all liability or loss, and against all claims or actions based upon or arising from any claim, lien, damage or injury (including death), to persons or property caused by the Lessee or sustained in connection with the Lessee's performance under this Lease, the violation of any statute, ordinance, code or regulation, and the defense of any such claims or actions, including any and all attorney's fees and litigation costs. The Lessee shall save and indemnify the City, its officers, employees and agents, and hold the City, its officers, employees and agents harmless from the payment of all federal, state and local taxes or contributions imposed or required, including, but not limited to, unemployment insurance, social security and income taxes, and any and all taxes, fees, excises with respect to employees or other persons engaged in the performance of this Lease.


12. In the event the City uses its City Attorney or engages an attorney to enforce the City's rights hereunder, including, but not limited to suit or collection efforts in furtherance thereof, the Lessee agrees to pay for the value or costs of such attorney, plus all costs, including the costs of any experts. This Lease shall be governed by, construed, and enforced in accordance with the laws of the State of Colorado. Venue, for any action arising out of or this Agreement, shall be in District Court, Mesa County, Colorado.


13. The provisions of this Lease Agreement shall not inure to the benefit of the heirs, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, each party to this Agreement has caused it to be executed on the date(s) indicated below.

For the City of Grand Junction,
Colorado

Attest:

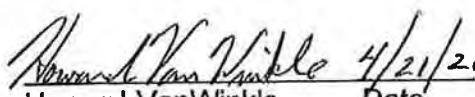

Greg Caton 5/7/2020
City Manager Date


Wanda Winkelmann 05/07/2020
City Clerk Date



Lessees:

VanWinkle Ranch LLC


Howard VanWinkle 4/21/20
Member of VanWinkle Ranch LLC Date


Jamie VanWinkle 4/21/2020
Member of VanWinkle Ranch LLC Date

APPENDIX C

AGREEMENT

As an expressed condition of the right to hunt on property owned by the City of Grand Junction, a Colorado home rule municipality, the undersigned, hereinafter referred to as "the Permittee", does hereby agree to: Indemnify the City of Grand Junction, its officers, employees and agents and to hold the City of Grand Junction, its officers, employees and agents, harmless from all claims, causes of action or demand the Permittee may have against the city of Grand Junction, its officers, employees and agents, for injury to or destruction of any property of the Permittee or any third party which may be lost, injured, damaged, destroyed or devalued as a result of the act, or failure to act, of the Permittee or any third party; indemnify the City of Grand Junction, its officers, employees and agents, and to hold the City of Grand Junction, its officers, employees and agents harmless from any and all claims, damages, actions, personal injury (including death), costs and expenses of every kind in any manner arising out of or resulting from the Permittee's use of or presence upon the Property.

Please Print:

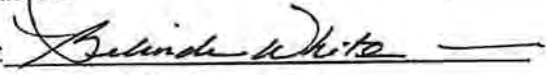
Name of Permittee: GREG CATON

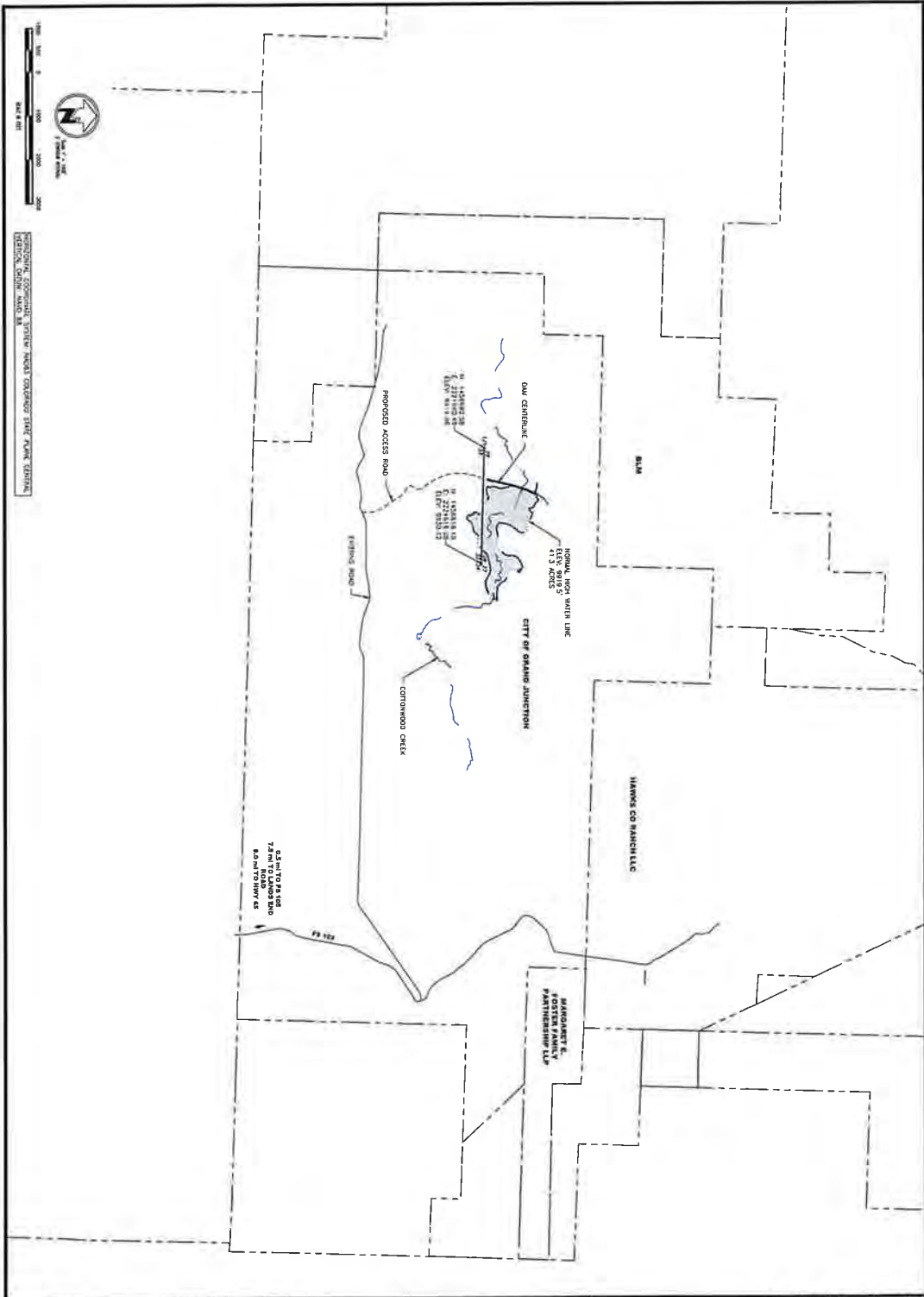
Permittee's Legal Address: 250 North 5th Street
Grand Junction, CO 81501

Signed this 17th day of May, 2020.

Permittee: 

Witness:

By: 



31

10147

NO	DATE	BY	CHG	DESCRIPTION

REVISIONS				
NO	DATE	BY	CHG	DESCRIPTION

SNOWCAP COAL CO.

VINCENT NO. 2 RESERVOIR

EXHIBIT B

Water Resource Advisor for the 9th LGA

1800 West 21st Ave., Suite 600
 Denver, CO 80202
 (303) 452-2611
 Fax: (303) 452-2759
 e-mail: info@applegatgroup.com Website: www.applegatgroup.com

As per: 05/01/01-12/14, Permit to Remove, Store, Reuse, Reclaim, or Transport (SRP) required for any activity on BLM land. SRP required for any activity on BLM land. SRP required for any activity on BLM land. SRP required for any activity on BLM land.

Exhibit C to Sublease Agreement

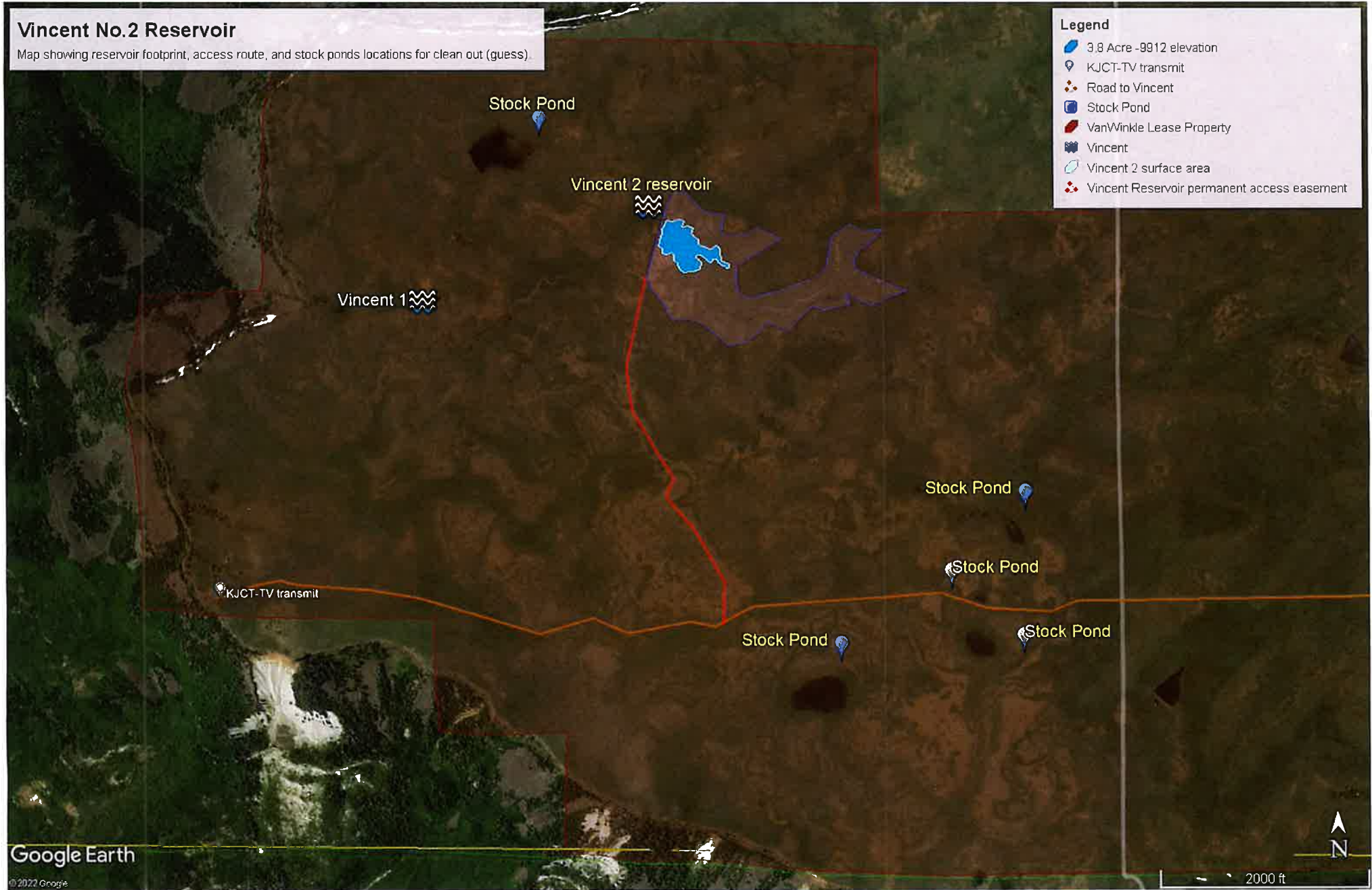


Exhibit C
Construction Specifications and Construction Plans



COLORADO
Division of Water Resources
Department of Natural Resources
Dam Safety Branch

March 15, 2022

Craig Ullmann, P.E.
Applegate Group, Inc.
PO Box 963
102 W. Bridge St.
Hotchkiss, Colorado 81419
via email: craigullmann@applegategroup.com

When replying, please refer to:
VINCIENT #2 DAM, DAMID 720319
Water Division 5, Water District 72
Construction File No. C-2119

SUBJECT: Approval of Plans and Specifications

Dear Mr. Ullmann,

Thank you for submitting plans and specifications on behalf of the Snowcap Coal Company for the rehabilitation of Vincient #2 Dam, located in Mesa County, Colorado. The proposed project entails completely rebuilding a formerly breached dam for the purposes of storing augmentation water to replace uncontrollable depletions to Rapid Creek caused by past underground mining activities, per the *Compliance Order on Consent*.

We have completed our review of the design and construction documents relative to dam construction and have found them to be acceptable for construction. We are transmitting one digital copy each of the construction plans and specifications, with approval signatures, as digitally signed PDF files. Our acceptance and approval of these documents are effective as of the date of this letter. We understand you are continuing to coordinate approval of the water rights portion of the project with our Division 5 Engineer, considered separate from this approval letter.

The construction of this project must be performed under the purview of a professional engineer registered in the state of Colorado. We direct your attention to Rule 8.2 (copy enclosed) of the Rules and Regulations concerning construction observations, coordination, and documentation activities required for this low hazard dam. Please keep Ms. Jackie Blumberg of our Grand Junction office at (303) 505-6469 and Jason Ward of our Montrose office at (970) 209-1624 informed of the construction status so they may also meet our obligations under Rule 8.

Please retain the provided digitally approved plan sheets for your records and reference and for archiving after construction. Those will need to be maintained and provided for distribution and paper document production. At the end of construction we will need you to provide a PDF file of the approved plans, with the approval signatures as well as a new signature on the as-constructed certification. Final acceptance of the construction will be contingent upon our receipt and acceptance of the "As-Constructed" plans, as well as the other requirements of Rule 8.



Craig Ullmann, P.E.
Vincient #2 Dam - Dam Rehabilitation Construction Approval Letter
DAMID 720319, Construction File No. C-2119
March 15, 2022
Page 2 of 2

We look forward to working with Applegate Group Inc. and the Snowcap Coal Company on the successful completion of this project. Please do not hesitate to call me at (719) 258-0859 if you have any questions concerning this matter or any other dam safety related issues.

Sincerely,



John Hunyadi, P.E.
Chief, Colorado Dam Safety Branch

Enc: Copy of Rule 8 of the "Rules and Regulations for Dam Safety and Dam Construction"

cc: James Heath, Division Engineer, Water Division 5
Brian Sewell, District 72 Water Commissioner
Ben Krause, Lower Colorado River Lead Water Commissioner
Jackie Blumberg, Dam Safety Engineer
Jason Ward, Design Review Engineer
Casey Koenig, ckoenig@aep.com
John Justus, jjustus@hfak.com

Vincient #2 Reservoir Construction Specifications

March, 2022

AG File #: 21-115

DAMID: 720319

SEO Construction File #: C-2119

Water Division 5, District 72

Mesa County, Colorado

Snowcap Coal
Company, Inc.
P.O Box 1430
Palisade, CO 81526



SECTION 00 00 01

PROJECT TITLE PAGE

VINCIENT # 2 RESERVOIR REPAIR CONSTRUCTION SPECIFICATIONS

Dam ID:	720319
SEO Construction File:	C-2119

Water Division 5, Water District 72, Mesa County

PREPARED FOR:

Snowcap Coal Co.
PO Box 1430
Palisade, CO 81526

PREPARED BY:

APPLEGATE GROUP, INC
1490 W 121st Ave., Ste. 100, Denver, CO 80234
PHONE: (303) 452-6611; FAX: (303) 452-2759

I hereby certify that these specifications for the repair of the Vincent No. 2 Reservoir were prepared by me or under my direct supervision for the Snowcap Coal Co.

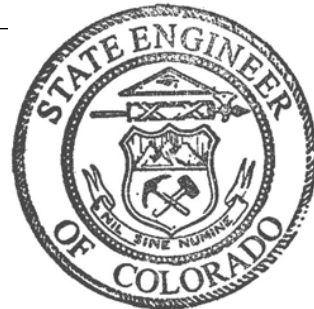
Approved on the 15th day of
March, 2022

Kevin Rein

State Engineer



Craig M. Ullmann, Colo. PE No. 38551



By: _____

John Hunyadi, Colo. PE No. 42709

Chief – Dam Safety Branch

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01 33 00 SUBMITTAL PROCEDURES
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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Work covered by Contract Documents.
 - 2. Access to Site.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Vincient #2 Reservoir Repair entails repairing the breach of the existing dam and installing new spillway with riprap and inlet/outlet works including inclined slide gate, PVC pipe, filter collar with drain system, outlet structure, staff gage, and measuring flume. The project also includes placement and compaction of stockpiled embankment materials, dam crest grading, and installation of upstream slope protection riprap using on site riprap.

1.03 ACCESS TO SITE

- A. Project is generally located at Vincient # 2 Reservoir which is approximately 7 miles Southeast of the Town of Palisade in Mesa County, Colorado. The project site is located at the following approximate latitude and longitude: 39.058337, -108.238903.
- B. Project site is not a secured site.
- C. Access is by dedicated highways, Forest Service roads and prescriptive Right-of-Way.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 13

CONTRACTOR'S USE OF PREMISES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Access to Site.
 2. Security Measures.
 3. Public Safety Measures.

1.2 ACCESS TO SITE

- A. Comply with security policies of OWNER and the City of Grand Junction (Property Owner)
- B. CONTRACTOR may use lands shown in Contract Documents and identified during Preconstruction Conference for staging, storage, lay down and employee parking.
1. If available lands are not adequate, acquire use of additional land by lease or licensing with area property owners with ENGINEER prior approval, and provide ENGINEER with copies of lease or license.
- C. Operations shall be confined to those permitted by local laws, ordinance and permits, and meet the following requirements:
- a. Do not unreasonably encumber site with materials or equipment
 - b. Assume full responsibility for protection and safekeeping of products stored on premises
 - c. Move any stored products which interfere with operations of the PROPERTY OWNER, or may impact public safety
 - d. Obtain and pay for use of additional storage or work areas needed for operations
- D. The CONTRACTOR must maintain all of his construction activities within the PROPERTY OWNER's property and/or construction easements and limits of the project, or other stated areas, unless permits and/or written permission are obtained by the CONTRACTOR, from appropriate authorities or private property owners, outside of these areas. CONTRACTOR may fence all easements and immediate work areas. The temporary permits must be secured and paid for by the CONTRACTOR at no extra cost to the OWNER. Any temporary permits secured must be in writing and a copy of same provided to the ENGINEER.
- E. CONTRACTOR must implement Good Housekeeping Practices for entire duration of construction. (Refer to SECTION 01 74 50 – ENVIRONMENTAL CONTROLS)

1.3 SECURITY MEASURES

- A. CONTRACTOR'S TOOLS AND EQUIPMENT
1. Provide lockable storage container for tools that will be stored on site.
 2. OWNER and Property Owner are not responsible for lost or stolen tools.
- B. OWNER and Property Owner are not responsible for any damage to CONTRACTOR's tools and equipment while left unattended.

1.4 PUBLIC SAFETY MEASURES

- A. Construction Vicinity

1. Orange construction fencing shall be placed around excavated areas that must be left open overnight.
2. Cones, signs, fencing, or other highly visible warnings shall be used during construction to prevent unauthorized public access in immediate vicinity of construction work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 50

SEO NOTIFICATION

PART 1 GENERAL

1.1 REFERENCES

- A. State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer, Dam Safety
 - 1. Rules and Regulations for Dam Safety and Dam Construction

1.2 SEO NOTIFICATION

- A. The State Engineer's office (SEO) shall be notified by the OWNER's representative for any design or Specification changes in accordance with Rule 8.2.5 of the SEO's Rules and Regulations. Written approval will be required from the SEO for any significant changes to the Plans and Specifications. Minor changes, as determined by the State Engineer, may be approved verbally by the SEO.
- B. Approved Plans and Specifications shall not be materially changed, by any party, without written approval of the State Engineer.
- C. The OWNER's representative shall give the SEO at least five days advance notice of any work requiring inspection by the SEO as identified in the pre-construction meeting in accordance with Rule 8.2.4 of the SEO's Rules and Regulations.
- D. The State Engineer has the authority to require the material used and the work of construction to be accomplished according to the Rules and Regulations set forth by the SEO and that construction shall not be considered complete until the State Engineer has accepted the same in writing.
- E. The OWNER's ENGINEER will monitor the quality of construction as specified in Rule 8 of the SEO's Rules and Regulations. The ENGINEER monitoring the construction for the OWNER is responsible for the quality of construction, compliance with the approved design and specification, preparation of the necessary documentation for the State Engineer's review and approval of all construction change orders, and preparation of the project completion documents required in Rule 9.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 00

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Prepare detailed schedule of all construction operations and procurements to be reviewed by parties attending the preconstruction conference.
2. Schedule shall be approved by the OWNER and ENGINEER prior to Notice to Proceed.

1.2 FORMAT AND SUBMISSIONS

- ###### A. Prepare construction and procurement schedules in a graphic format suitable for displaying scheduled and actual progress.

1.3 CONTENT

A. Construction Progress Schedule

1. Show the complete work sequence of construction by activity and location.

1.5 OWNER'S RESPONSIBILITY

- ###### A. OWNER's review is only for the purpose of checking conformity with the Contract Documents and assisting CONTRACTOR in coordinating the Work with the needs of the Project.
- ###### B. It is not to be construed as relieving CONTRACTOR from any responsibility to determine the means, methods, techniques, sequences, and procedures of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 10

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Construction photographs.
 - 2. Record Documents.
 - 3. Periodic site observation.
- B. Related Sections:
 - 1. SECTION 01 77 00 - CONTRACT CLOSEOUT

1.2 CONSTRUCTION PHOTOGRAPHS

- A. Take photographs at major phases of construction
 - 1. Submit monthly in JPEG format via email.

1.3 RECORD DOCUMENTS

- A. Quality Assurance:
 - 1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain record documents.
 - 2. Accuracy of Records:
 - a. Coordinate changes within record documents, make legible and accurate entries on each page of Specifications and each sheet of Drawings and other documents where such entry is required to show change.
 - b. Document factual information regarding aspects of Work, both concealed and visible, to enable future modification of Work to proceed without lengthy and expensive site measurement, investigation, and examination.
 - 3. Make entries within 24 hours after receipt of information that change in Work has occurred.

1.4 PERIODIC SITE OBSERVATION

- A. ENGINEER will make site observation to verify that construction is in conformance with the approved construction plans and specifications.
- B. OWNER's personnel on official business may visit site to monitor progress.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 MAINTENANCE OF RECORD DOCUMENTS

- A. General:
 - 1. Promptly following commencement of Contract Time, secure from ENGINEER at no cost to CONTRACTOR, one complete set of Contract Documents.
 - 2. Label or stamp each record document with title, "Record Documents," in neat large printed letters.
 - 3. Record information concurrently with construction progress.
 - 4. Do not cover or conceal Work until required information is recorded.
- B. Preservation:

1. Maintain documents in clean, dry, legible condition and in good order.
 2. Do not use record documents for construction purposes.
 3. Make documents available at all times for observation by ENGINEER.
- C. Entries on Drawings:
1. Date entries.
 2. Use erasable colored pencil; clearly describe change by graphic line and note as required.
 3. Call attention to entry by “cloud” drawn around area or areas affected.
 4. Legibly mark to record actual changes made during construction, including, but not limited to:
 - a. Depths of various elements of foundation in relation to finished first floor data if not shown or where depth differs from that shown.
 - b. Horizontal and vertical locations of existing and new underground facilities and appurtenances, and other underground structures, equipment, or Work. Reference to at least two measurements to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - d. Location of existing facilities, piping, equipment, and items critical to interface between existing physical conditions or construction and new construction.
 - e. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, Written Amendment, and ENGINEER’s written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.
 5. Dimensions on Schematic Layouts: Show on record drawings, by dimension, centerline of each run of items such as are described in previous subparagraph above.
 - a. Clearly identify item by accurate note such as “cast iron drain,” “galv. water,” and like.
 - b. Show, by symbol or note, vertical location of item (“under slab,” “in ceiling plenum,” “exposed,” and like).
 - c. Make identification so descriptive that it may be related reliably to Specifications.
 6. Specifications: Legibly mark and record for each product description of actual product installed if differs from that specified, including:
 - a. Manufacturer, trade name, and catalog model number of each product and item of equipment actually installed.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Submittal procedures.
 - 2. Submittal schedule.
 - 3. Administrative submittals.
 - 4. Shop Drawings and Samples.
 - 5. Product data.
 - 6. Quality control submittals.
 - 7. Contract closeout submittals.
 - 8. Action on submittals.
- B. Related Sections:
 - 1. SECTION 01 77 00 - CONTRACT CLOSEOUT
- C. Related Documents:
 - 1. Transmittal of CONTRACTOR's Submittal

1.02 SUBMITTAL PROCEDURES

- A. Direct inquires to ENGINEER regarding procedure, purpose, or extent of Submittal.
- B. Schedule and make submissions in accordance with requirements of individual Specification Sections and in such sequence as to cause no delay in Work or in work of other Contractors.
- C. Identification of Submittals:
 - 1. Complete, sign, and transmit with each submittal package one Transmittal of CONTRACTOR's Submittal Form.
 - 2. Identify each submittal with following numbering system:
 - a. Sequentially number each submittal.
 - b. Number resubmittals with original number and an alphabetic suffix.
 - 3. Format submittals in an orderly manner, indexed with labeled tab dividers.
 - 4. Show date of submission.
 - 5. Show Project title and OWNER's contract identification and contract number.
 - 6. Show names of CONTRACTOR, Subcontractor or supplier, and manufacturer as appropriate.
 - 7. Identify Contract Document section and paragraph to which submittal applies.
 - 8. Identify submittal type; submit only one type in each Submittal package.
 - 9. Identify each deviation or variation from Contract Documents.
- D. Revise and resubmit submittals when required; identify changes made since previous submittal.
- E. For each submittal, allow 7 days for ENGINEER's review, excluding delivery time to and from CONTRACTOR, unless otherwise specified. Resubmittals will be subject to same review time.
- G. Schedule submittals to expedite Project and deliver to ENGINEER. Coordinate submittal of related items.
- H. Schedule Delays:
 - 1. Adjustment of Contract Times or Price due to ENGINEER's review of Submittals will only be allowed if all following criteria are met:
 - a. CONTRACTOR has notified ENGINEER in writing that timely review of submittal in question is critical to progress of Work, and has received ENGINEER's written acceptance to reflect such. Written agreement by ENGINEER to reduce submittal

review time will be made only for unusual and CONTRACTOR-justified reasons. Acceptance of progress schedule containing submittal review times less than specified or less than agreed to in writing by ENGINEER will not constitute ENGINEER's acceptance of review times.

- b. ENGINEER has failed to review and return first submission of submittal within agreed time indicated on current accepted schedule of submissions or, if no time is indicated thereon, within 20 days after receipt.
 - c. CONTRACTOR demonstrates that delay in progress of Work is directly attributable to ENGINEER's failure to return submittal within time indicated and accepted by ENGINEER.
2. No adjustment of Contract Times or Price will be allowed due to delays in progress of Work caused by rejection and subsequent resubmission of submittals, including multiple resubmissions.

1.03 ADMINISTRATIVE SUBMITTALS

- A. Description: Submittals that are not shop drawings, samples, or product data and do not reflect quality of product or method of construction.
- B. Number of Copies: One.
- C. Applications for Payment: Refer to SECTION 01 29 00.
- D. Provide submittals required by Laws, Regulations, and Governing Agencies:
 1. Promptly submit notifications, reports, certifications, payrolls, and other items as required, directly to applicable federal, state, or local governing agency or their representative.
 2. Transmit to ENGINEER for OWNER's records one copy of correspondence and transmittals including enclosures and attachments between CONTRACTOR and governing agency. Do not include any correspondence or transmittals that would be an invasion of privacy between CONTRACTOR and its employees.

1.04 SHOP DRAWINGS AND SAMPLES

- A. Submit Shop Drawings and Samples to ENGINEER as required by individual Specification Sections.
- B. Present in clear and thorough manner and of sufficient detail to show kind, size, arrangement, and function of components, materials, and devices and compliance with Contract Documents.
- C. Number of Copies:
 1. Shop Drawings: One.
 2. Samples: One, unless otherwise specified in individual Specification Sections.
- D. Identify:
 1. Pertinent drawing sheets and detail numbers, products, units and assemblies, and system or equipment identification or tag numbers.
 2. Critical field dimensions and relationships to other critical features of Work.
 3. Samples: Source, location, date taken, and by whom.
 4. Each deviation or variation from Contract Documents.
 5. Equipment and Component Titles: Identical to title shown on Drawings.
 6. Manufacturer's standard schematic drawings and diagrams:
 - a. Modify to delete information that is not applicable to Work.
 - b. Supplement standard information to provide information specifically applicable to Work.
- E. Design Data: Show calculations, dimensions, assumptions, referenced standards, and codes upon which design is based.

1.05 PRODUCT DATA

- A. Clearly mark each copy to identify pertinent products or models and show performance

characteristics and capacities, dimensions and clearances required, wiring or piping diagrams and controls, and external connections, anchorages, and supports required.

- B. Supplement manufacturers' standard data to provide information unique to this Project.
- C. Copies: Submit One.

1.06 CONTRACT CLOSEOUT SUBMITTALS

- A. Submit in accordance with SECTION 01 77 00.

1.07 ACTION ON SUBMITTALS

- A. Distribution of reviewed submittals:
 - 1. One copy each to ENGINEER and Construction Project Manager.
 - 2. Remaining copies returned to CONTRACTOR.
- B. ENGINEER will review, mark, and stamp as appropriate and distribute marked-up copies as noted:
 - 1. *No Exceptions Taken:*
 - a. Final Unrestricted Release: Where submittals are marked as "No Exception Taken," Work covered by submittal may proceed provided it complies with Contract Documents. Acceptance of Work depends on compliance.
 - 2. *Make Corrections Noted:*
 - a. Final-but-Restricted Release: When submittals are marked as "Make Corrections Noted," Work covered by submittal may proceed provided it complies with Engineer's notations or corrections on submittal and Contract Documents. Acceptance of Work depends on compliance. Re-submittal not required.
 - 3. *Revise and Resubmit:*
 - a. Returned for Re-submittal: When submittals are marked as "Revise and Resubmit," do not proceed with Work covered by submittal. Do not permit Work covered by submittals to be used at Project site or elsewhere where Work is in progress.
 - 4. *Submit Specific Item(s):*
 - a. Submit Specific Item: When submittals are marked "Submit Specific Item(s)," do not proceed with work covered by submittal.
 - b. Prepare new submittal for specific item product or material.
 - 5. *Other:*
 - a. Perform requests as noted.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Regulatory Requirements.
 - 2. Workmanship.
 - 3. Responsibilities of CONTRACTOR.
 - 4. Coordination.

1.2 REGULATORY REQUIREMENTS

- A. Concrete:
 - 1. American Concrete Institute 318 – Building Code Requirements for Structural Concrete and Commentary

1.3 WORKMANSHIP

- A. Perform work to highest level of workmanship and detail possible.
- B. Meticulous work and high attention to detail regarding mechanical components, measurements, assembly, and other activities covered by Contract Documents is expected.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 RESPONSIBILITIES OF CONTRACTOR

- A. Implement and conduct quality control program that will ensure timely and cost-effective completion of this project in conformance with Contract Documents.
- B. Cooperate with OWNER in accommodating OWNER-furnished material, furnishings, equipment and its installation and OWNER's construction review.
- C. Establish on-site lines of authority and communication.
 - 1. Attend meetings.
 - 2. Utilize sequentially numbered and dated forms to document requests for information and clarification.
- D. Provide and maintain competent staff of experienced construction, administrative and supervisory personnel in sufficient numbers to meet contract completion date.
- E. Provide and designate competent, experienced person to perform quality control reviews of Work.
- F. Responsibilities of quality control reviewer:
 - 1. Review work by CONTRACTOR.
 - 2. Verify that Work is ready for ENGINEER's review.
 - 3. Schedule reviews with ENGINEER.
 - 4. Be responsible in conjunction with CONTRACTOR's superintendent for correction of non-conforming work.
- G. If CONTRACTOR fails to provide competent and experienced person to perform quality control reviews, OWNER will retain services of required staff and deduct their fees from periodic progress payments due to CONTRACTOR.
- H. Furnish detailed time schedule of operations for work on Project. Monitor schedule as work progresses and revise schedule at appropriate intervals, or as requested by ENGINEER, to reflect actual progress.

- I. CONTRACTOR shall provide OWNER, ENGINEER, and STATE ENGINEER OFFICE PERSONNEL proper and safe access to the site for their observation, inspection, and testing. CONTRACTOR shall cooperate with inspection and testing personnel to facilitate any inspections and tests by the OWNER, ENGINEER, or STATE ENGINEER OFFICE PERSONNEL

3.2 **COORDINATION**

- A. Carefully review Contract Documents and report to ENGINEER any error, omission, conflict, inconsistency, or code violation discovered.
- B. Require Subcontractors to comply with requirements of Contract Documents.
- C. Await written instructions prior to correcting conflicts or problems identified.

END OF SECTION

SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Submittals.
 - 2. Mobilization.
 - 3. Permits.
 - 4. Temporary Utilities.
 - 6. Protection of Work and Property.
 - 6. Temporary Controls
 - 7. Storage Yards and Buildings.
 - 8. Parking Areas.
 - 9. Progress Cleaning.
- B. Related Documents:
 - 1. General Conditions
 - 2. In following paragraph, include Sections used for this Project.

1.02 REFERENCES

- A. NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
- B. ANSI Z60.1, American Standard for Nursery Stock.
- C. UDFCD, Drainage Criteria Manual, Volume 3.

1.03 MOBILIZATION

- A. Mobilization includes as minimum:
 - 1. Obtaining required permits.
 - 2. Moving CONTRACTOR's equipment required for operations onto site.
 - 3. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.
 - 4. Posting OSHA required notices and establishing safety programs and procedures.
 - 5. Having CONTRACTOR's superintendent at site full time.
 - 6. Providing CONTRACTOR field offices, if necessary.

1.04 PERMITS

- A. OWNER will obtain the necessary US Army Corp of Engineers Permit and secure the necessary approvals from the City of Grand Junction for use of the site
- B. Apply for and conform to additional permits as required by local, state and federal agencies.
- C. Permits:
 - 1. Submit applications for permits prior to commencing work.
 - 2. Send copies of applications to OWNER and ENGINEER
 - 3. Provide copies of approved permits to OWNER and keep original on site.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TEMPORARY UTILITIES

- A. Power:
 - 1. Electric power will not be available from OWNER at site.
 - 2. Provide temporary electrical service approved by ENGINEER, as needed.
- B. Water:
 - 1. Include costs to transport water to construction areas, if required.
 - 2. Provide temporary facilities and piping required to bring water to point of use, and remove when no longer needed.
 - 3. No potable water is available at site. Make arrangements for and bear costs of providing water required for drinking by construction personnel during project construction.
- E. Sanitary and Personnel Facilities:
 - 1. Provide and maintain facilities for ENGINEER's personnel, CONTRACTOR's employees, Subcontractors, and other onsite construction personnel.
 - 2. Service and clean twice weekly, or as necessary; maintain facilities and enclosures.
- F. Fire Protection: In accordance with NFPA No. 241.

3.02 PROTECTION OF WORK AND PROPERTY

- A. General:
 - 1. OWNER provides right-of-way, easement or project site for permanent access or permanent construction for project.
 - 2. Additional access, access right-of-way, construction areas, or additional needed land involved in construction of this project is responsibility of CONTRACTOR.
 - 3. Land owned by OWNER may be used as site headquarters, storage yard, or base of operations provided that use of said land meets requirements and restrictions imposed by OWNER at time of usage.
 - 4. Remove waste materials from area and dispose of offsite.
 - 5. Restore areas outside project used by CONTRACTOR to original condition on completion of construction.
 - 6. Perform Work within OWNER's property in systematic manner that minimizes inconvenience to OWNER and public.
 - 7. Do not block access to OWNER's property from vehicular traffic.
 - 8. Do not place solvents, non-food grade greases and oils, and other deleterious materials in potable water area. If Work requires equipment that utilizes deleterious materials, submit Containment Plan to ENGINEER for approval.
- B. Finished Construction: Protect finished surfaces from damage by construction operations.
- C. Waterways: Keep ditches, culverts, and natural drains continuously free of construction materials and debris.
- D. Dewatering:
 - 1. Construct, maintain, and operate cofferdams, channels, slurry trenches, flume drains, sumps, pumps, and other temporary diversion and protection measures.
 - 2. Install, maintain, and operate pumps and other equipment for environmentally safe removal and disposal of water.
 - 3. Maintain excavations, foundations, and structures free from water.
- E. Archaeological Finds:
 - 1. If archaeological or paleontological finds are made within limits of site, notify ENGINEER immediately.
 - 2. Continue Work in other areas without interruption.

3.03 TEMPORARY CONTROLS

- A. Air Pollution Control:
 - 1. Minimize air pollution from construction operations.
 - 2. Burning of waste materials, rubbish, or other debris is not permitted on or adjacent to site.
- B. Water Pollution Control:
 - 1. Obtain stormwater permit for Project, including development of Stormwater Management Plan, in accordance with requirements of Colorado Department of Public Health and Environment, and Mesa County.
- C. Erosion, Sediment, and Flood Control:
 - 1. Provide, maintain, and operate temporary facilities to control erosion and sediment releases, and to protect Work and existing facilities from flooding during construction.
 - 2. Install and maintain silt fencing between construction activities and drainage channel until revegetation is established.
 - 3. Provide straw bale and/or coir logs protection to stormwater inlets affected by construction.

END OF SECTION

SECTION 01 71 00

SITE CONDITIONS

PART 1 GENERAL

1.1 SUMMARY

- A. The CONTRACTOR acknowledges that they have satisfied themselves as to the nature and location of the work, the general and local conditions, particularly those bearing upon access to the site; handling, storage, and disposal of materials; availability of water, electricity and roads; uncertainties of weather, river stages, water flow rates and levels in irrigation ditches and canals or similar physical conditions at the site; the conformation and conditions of the ground; the equipment and facilities needed preliminary to and during the execution of the work; and all other matters which can in any way affect the work or the cost thereof under this Contract.
- B. The CONTRACTOR further acknowledges that they have satisfied themselves as to the character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records of exploratory work furnished by the OWNER or included in these Documents. Failure by the CONTRACTOR to acquaint themselves with the physical conditions of the site and all the available information will not relieve them from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- C. The CONTRACTOR warrants that as a result of his examination and investigation of all the aforesaid data that they can perform the work in a good and workmanlike manner and to the satisfaction of the OWNER. The OWNER assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless such representations are expressly stated in the Contract, and the Contract expressly provides that the responsibility therefore is assumed by the OWNER.

PART 2 PRODUCTS

2.1 INFORMATION ON SITE CONDITIONS

- A. Any information obtained by the ENGINEER regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities, and similar data will be available for inspection, as applicable, at the office of the ENGINEER upon request. Such information is offered as supplementary information only. Neither the ENGINEER nor the OWNER assumes any responsibility for the completeness or interpretation of such supplementary information.
 - 1. Differing Subsurface Conditions:
 - a. In the event that the subsurface or latent physical conditions are found materially different from those indicated in these Documents, and differing materially from those ordinarily encountered and generally recognized as inherent in the character of work covered in these Contract Documents, the CONTRACTOR shall promptly, and before such conditions are disturbed, notify the ENGINEER in writing of such changed conditions.
 - b. The ENGINEER will investigate such conditions promptly and following this investigation, the CONTRACTOR shall proceed with the work, unless otherwise instructed by the ENGINEER. If the ENGINEER finds that such conditions do so materially differ and cause an increase or decrease in the cost of or in the time required for performing the work, the ENGINEER will recommend to the OWNER the amount of adjustment in cost and time they considers reasonable. The OWNER will

make the final decision on all Change Orders to the Contract regarding any adjustment in cost or time for completion.

2. Underground Utilities:
 - a. No known Utilities exist on site

PART 3 EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall be solely and directly responsible to the owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
- B. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.
- C. If the CONTRACTOR while performing the Contract discovers utility facilities not identified in the Drawings or Specifications, they shall immediately notify the OWNER, utility, and the ENGINEER in writing.
- D. The CONTRACTOR shall replace, at his own expense, any and all other existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents or ordered by the ENGINEER.

3.2 FIELD RELOCATION

- A. During the progress of construction, it is expected that minor relocations of the work will be necessary. Such relocations shall be made only by direction of the ENGINEER. If existing structures are encountered that prevent the construction, and that are not properly shown on the Drawings, notify the ENGINEER before continuing with the construction in order that the ENGINEER may make such field revision as necessary to avoid conflict with the existing structures. If the CONTRACTOR shall fail to so notify the ENGINEER when an existing structure is encountered, and shall proceed with the construction despite the interference, they shall do so at their own risk.

3.3 EASEMENTS

- A. Where portions of the work are located on public or private property, easements and permits will be obtained by the OWNER. Easements will provide for the use of the property for construction purposes to the extent indicated on the easements. Copies of these easements and permits are available upon request to the OWNER. It shall be the CONTRACTOR's responsibility to determine the adequacy of the easement obtained in every case and to abide by all requirements and provisions of the easement. The CONTRACTOR shall confine his construction operations to within the easement limits or make special arrangements with the property owners or appropriate public agency for the additional area required. Any damage to property, either inside or outside the limits of the easements provided by the OWNER, shall be the responsibility of the CONTRACTOR as specified herein. The CONTRACTOR shall remove, protect, and replace all fences or other items encountered on public or private property. Before final payment will be authorized by the ENGINEER, the CONTRACTOR will be required to furnish the OWNER with written releases from property owners or public agencies where side agreements or special easements have been made by the CONTRACTOR or where the CONTRACTOR's operations, for any reason, have not been kept within the construction right-of-way obtained by the OWNER.
- B. It is anticipated that the required easements and permits will be obtained before construction is started. However, should the procurement of any easement or permit be

delayed, the CONTRACTOR shall schedule and perform the work around these areas until such a time as the easement or permit has been secured.

3.4 LAND MONUMENTS

- A. The CONTRACTOR shall notify the ENGINEER of any existing Federal, State, City, County, and private land monuments encountered. Private monuments shall be preserved, or replaced by a licensed surveyor at the CONTRACTOR's expense. When Government monuments are encountered, the CONTRACTOR shall notify the ENGINEER at least two (2) weeks in advance of the proposed construction in order that the ENGINEER will have ample opportunity to notify the proper authority and reference these monuments for later replacement.

END OF SECTION

SECTION 01 71 23

CONSTRUCTION SURVEYING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Survey.
 - 2. Construction layout.
 - 3. Field Engineering.
 - 4. Reference and coordinate points.
 - 5. Construction lines and grades.
 - 6. Supplemental Information.

1.03 SURVEY

- A. Perform surveys that are necessary to lay out structure and pipeline lines, alignments, grades and elevations from control points.
- B. ENGINEER may review and or verify CONTRACTOR-established lines, grades, and elevations by surveys. Provide access to project work for these surveys.
- C. Reviews or surveys performed or requested by ENGINEER shall not relieve CONTRACTOR's responsibility for correct lines, grades, elevations and structure layout.

1.04 CONSTRUCTION LAYOUT

- A. Perform construction layout using qualified, competent personnel.
- B. Stake pipelines at horizontal points of intersection (PI's), grade changes and at 50 foot intervals or less.
- C. Make survey data available for review throughout construction time period.

1.05 REFERENCE AND COORDINATE POINTS

- A. Protect and preserve reference points and benchmarks.
- B. Report damaged or destroyed reference points and benchmarks to ENGINEER.
 - 1. ENGINEER will reestablish damaged, moved, altered, or destroyed reference benchmarks and coordinate points.
 - 2. If damaged, moved, altered, or destroyed by CONTRACTOR, cost of reestablishing such points shall be borne by CONTRACTOR.
 - 3. ENGINEER is not responsible for increased costs or delays to CONTRACTOR relating to reference points or benchmarks that are damaged, moved, altered, or destroyed by CONTRACTOR or its Subcontractors, suppliers, agents, or employees or other contractors working on site.
- C. Report potential errors in reference points or benchmarks to ENGINEER.
 - 1. Discontinue use of reference points or benchmarks alleged to be in error until accuracy of points can be verified.
 - 2. Claims for extra compensation for alteration or reconstruction allegedly due to errors in reference points or benchmarks will not be allowed unless original reference points and

bench marks still exist or substantiating evidence proving error is furnished by CONTRACTOR, and unless CONTRACTOR has reported such errors to ENGINEER as specified hereinbefore.

- D. Use of control monuments for construction surveying, other than those shown on Drawings or furnished by or approved by ENGINEER, is prohibited.

1.06 Submittals

- A. CONTRACTOR shall perform an As-Built survey of all construction features including, but not limited to, dam crest geometry, embankment geometry, spillway invert, new outlet features, instrumentation, survey monuments, conduit inverts, drain inverts, and structure inverts. As-Built survey shall be submitted to the ENGINEER and OWNER and incorporated into the Record Drawings as appropriate.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONSTRUCTION LINES AND GRADES

A. CONTRACTOR:

1. Make and maintain points and lines in connection with surveys required.
2. Provide string lines along centerline offset line from which line and grade of pipeline can be controlled and monitored.
3. Preserve line and grade stakes and markers set by ENGINEER, until otherwise authorized.

END OF SECTION

SECTION 01 74 50

ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. The work of this section consists of obtaining permits and providing environmental controls consistent with regulatory permits through the duration of the work required under this project.

PART 2 PRODUCTS (NONE)

PART 3 EXECUTION

3.1 PRESERVATION OF NATURAL FEATURES

- ###### A.
- Confine operations as much as possible. Exercise special care to maintain natural surroundings in an undamaged condition. Within the work limits, barricade trees, rock outcroppings, and natural features to be preserved.

3.2 HOUSEKEEPING

- ###### A.
- Keep project neat, orderly, and in a safe condition at all times. Store and use equipment, tools, and materials in a manner that does not present a hazard. Immediately remove all rubbish. Do not allow rubbish to accumulate. Provide on-site containers for collection of rubbish and dispose of it at frequent intervals during progress of work.

3.3 DISPOSAL

- ###### A.
- Disposal of Waste (Unsuitable) Materials: All material determined by the ENGINEER to be waste will be disposed of in approved landfill in a manner meeting all regulations. Dispose of waste materials, legally, at public or private dumping areas. Do not bury wastes inside of the limits of construction. All costs for dump fees, permits, etc., to be borne by the CONTRACTOR.
- ###### B.
- Disposal of Garbage and Other Construction Materials: Provide sanitary containers/dumpsters and haul away contents such that no overflow exists.
- ###### C.
- The CONTRACTOR is to immediately inform ENGINEER of any hazardous materials encountered during construction. Dispose of waste materials legally at private or public facilities.

3.4 BURNING

- ###### A.
- No burning of debris will be permitted.

3.5 PERMITS

- ###### A.
- All work must be performed in accordance with all applicable regulatory permits. If necessary, it shall be the responsibility of the CONTRACTOR to obtain a Groundwater Discharge (402) Permit from the Colorado Department of Public Health and Environment for any dewatering operations that will be discharged into any drainageways, open channels, or irrigation ditches. The CONTRACTOR shall be responsible for any testing required under the 402 Permit.
- ###### B.
- It shall be the responsibility of the CONTRACTOR to obtain all applicable permits.

END OF SECTION

SECTION 01 77 00
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Submittals
 - 2. Final cleaning
- B. Related Documents:
 - 1. General Conditions
- C. Related Sections:
 - 1. SECTION 32 92 00 - SITE RECLAMATION
- D. General:
 - 1. Upon completion of closeout activities, submit Application for Final Payment and completed Final Payment Release Form as provided in the Contract.
 - 2. Upon completion of closeout activities, ENGINEER will issue a Notice of Acceptability of Work (Final Completion).

1.2 REFERENCES

- A. State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer, Dam Safety
 - 1. Rules and Regulations for Dam Safety and Dam Construction

1.3 SUBMITTALS

- A. Quality Control Submittals: Written procedures for maintaining and markup of Record Documents.
 - 1. Submit in accordance with SECTION 01 33 00.
- B. Contract Closeout Submittals: Submit in accordance with the Contract and individual Specification Sections.
 - 1. Project Record Documents
 - 2. Red-lined as-built drawings (a.k.a. "Drawings of Record" or "Record Drawings")
 - 3. Operation and Maintenance Data
 - 4. Bonds, Warranties, and Service Agreements
 - 5. Consent of Surety to Final Payment
 - 6. Releases or Waivers of Liens and Claims
 - 7. Releases from Agreements
 - 8. Final Application for Payment
 - 9. Spare Parts and Special Tools

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 CLOSING OUT THE PROJECT

- A. CONTRACTOR advises the ENGINEER in writing that he has reached “Substantial Completion” and provides a list of items to be completed or corrected.
 - 1. Closeout may be conducted by areas or portions of the work if requested by the OWNER.
- B. ENGINEER inspects the work to determine if it is substantially complete and issues a Certificate of Substantial Completion plus a “Punch List” of items to be completed or corrected.
 - 1. Substantial Completion – Definition
 - a. All Work must be ready to serve its intended purpose.
- C. CONTRACTOR competes and/or corrects all punch list items and notifies the ENGINEER in writing that his work is ready for final inspection. At this time, a final application for payment is submitted.
- D. ENGINEER and SEO PERSONNEL will make final inspection. When the work is found to be acceptable under the Contract Documents, and the Contract fully performed, the ENGINEER will issue a final Certificate for Payment.
 - 1. Final Completion – Definition
 - a. All Work must be complete for Final Completion, including Final Cleaning.
 - 1) See 3.2 of this SECTION.
 - b. Contract Closeout Submittals must be received by ENGINEER
 - 1) See 1.3.B of this SECTION.
- E. Project will not be considered complete by the SEO until SEO PERSONNEL have performed final inspection in accordance with Rule 8.2.6 of the SEO’s Rules and Regulations.
 - 1. See 3.1.D of this SECTION
- F. Storage of water shall not be permitted until ENGINEER has submitted construction completion documents to the SEO in accordance with Rule 8.3.1 of the SEO’s Rules and Regulations.

3.2 FINAL CLEANING

- A. At completion of Work and prior to notice of Substantial Completion, remove tools, equipment, surplus materials, debris, and temporary construction from premises.
- B. Leave Work and adjacent areas in clean condition.
- C. Remove grease, dirt, dust, paint, stains, and other foreign materials resulting from Work under this Contract from street surfaces and surrounding areas.
- D. Repair damage to any surface or substrate caused by construction activities.
- E. Regrade Construction access routes to match adjacent, undisturbed areas.
- F. Remove Vehicle Tracking Control, regrade and reseed with native mix to match adjacent undisturbed areas.
- G. Repair, patch, and touch up marred surfaces to match adjacent surfaces.
- H. Leave watercourses, gutters, and ditches open and clean.
- I. Haul waste from job site to approved disposal area.
- J. Return areas to condition specified in SECTION 32 92 00.

END OF SECTION

SECTION 03 21 00

REINFORCING STEEL

GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Reinforcing steel.

1.02 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. 117 - Standard Specification Tolerances for Concrete Construction and Materials.
 - 2. 315 - Details and Detailing of Concrete Reinforcement.
- B. American Society for Testing and Materials (ASTM):
 - 1. A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - 2. A 185/A 185M - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
 - 3. A 497/A 497M - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
 - 4. A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- C. Concrete Reinforcing Steel Institute (CRSI):
 - 1. Manual of Standard Practice.
 - 2. Placing Reinforcing Bars.
- D. American Welding Society (AWS):
 - 1. D1.4 - Structural Welding Code - Reinforcing Steel.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Reinforcing steel:
 - 1. Store off the ground.
 - 2. Protect from oil or other materials that are detrimental to steel or the bonding capability of the reinforcing bar.
 - 3. Protect from mechanical injury.
 - 4. Rust, seams, surface irregularities, or mill scale, will not be cause for rejection provided that the weight and height of deformations of the hand-wire-brushed test specimen are not less than the applicable ASTM Specification.
- B. Do not drop or drag bars.

PART 2 PRODUCTS

2.01 REINFORCING STEEL

- A. Bar steel reinforcement: Deformed type, ASTM A 615, (AASHTO M31) and Grade 60.

2.02 TIE WIRE

- A. Standard tie wire:
 - 1. Sources: American Wire Tie, Inc., Mar-Mac Wire Inc.
 - 2. Description: 16 gauge wire tie.
- B. Tie wire in contact with inside face of water retaining structures: 16 gauge stainless steel.

2.03 BAR SUPPORTS

- A. General:
 - 1. Bar supports and spacing in accordance with CRSI Manual of Standard Practice, Chapter

- 3; a maximum of four feet or as required by the Drawings.
 2. Metal chairs: Stainless steel, zinc coated steel, steel epoxy coated after fabrication, or uncoated steel with approved plastic tipped legs with minimum 1/2-inch of lower end of legs plastic coated.
- B. Floor Slabs:
1. Use coated steel chairs in applications where the bottom of the slab will be exposed. Either coated or uncoated may be used in other applications.
 2. Composite chairs are not acceptable.
 3. When required, staple chair on the bearing pad:
 - a. 1/4-inch thick exterior grade plywood.
 - b. Approximately 5 inches square.

PART 3 EXECUTION

3.01 FABRICATION

- A. Fabrication tolerances for straight and bent bars: In accordance with the requirements of Subsection 4.3, Tolerance, of American Concrete Institute Standard 315 and CRSI Manual of Standard Practice.

3.02 BENDING

- A. Reinforcing bars shall be bent cold to shapes shown on the Drawings, and unless otherwise approved, bends shall conform to the requirements of ACI 315. All bending dimensions shall be out to out of bar.
- B. Bars partially embedded in concrete shall not be field bent except as shown on the Drawings.
- C. Bars shall not be bent or straightened in a manner that will injure the material.

3.03 PLACING AND FASTENING

- A. Place, fasten, splice and support reinforcing steel and wire mesh or bar mat reinforcement in accordance with the Drawings and the CRSI Recommended Practice for Placing Reinforcing Bars.
- B. Place reinforcement within the tolerances provided in ACI 117.
- C. When placed in the Work, the reinforcing bars shall be free from dirt, loose mill scale, paint, oil, loose rust, or other foreign substance.
- D. Accurately place steel reinforcement in positions shown on the Drawings and hold firmly during the placing and setting of concrete by means of spacer strips, stays, metal chairs or other approved devices or supports.
 1. Precast concrete bricks or other types of bricks are not permitted for the support of reinforcement in footings, slabs or any other part of Work.
 2. Space chair and bolster supports for slabs and walls at maximum 4 foot centers unless otherwise shown in the Drawings.
 3. Unless otherwise provided, use bar steel reinforcement to support the top layers of reinforcing.
 4. After form removal, clip staple tails from the staples used to attach bar supports to wall and roof form.
 5. Provide one row of continuous bar chairs for support under each row of bar splices.
- E. Tie bars securely at intersections, except where spacing is less than one foot in each direction, when alternate intersections shall be tied.
 1. The tying of steel by spot welding is not permitted.
 2. Bend tie wire to prevent tie wire from being closer than one inch from the surface of concrete.
 3. Bundle bars: Tie together at maximum 6 foot centers.

3.04 SPLICING

- A. Bar steel reinforcement shall be furnished in full lengths indicated on the Drawings.
- B. The splicing of bars, except where shown on the Drawings, will not be permitted without written acceptance.
- C. Stagger splices at the minimum distance required for lapped splice in bar.
- D. When permission is granted to splice bars, other than those shown on the Drawings, provide the additional material required for lap at no additional expense to the OWNER.
- E. Splices will not be permitted at points where the section is not sufficient to provide a minimum distance of 2 inches between the splice and the nearest adjacent bar or surface of concrete.
- F. Sheets of mesh or bar steel reinforcement shall overlap each other sufficiently to maintain uniform strength and shall be securely fastened at ends and edges. Minimum edge lap: one mesh in width.
- G. When required or permitted in writing by the ENGINEER, a mechanical connection may be used to splice reinforcing steel bars or as a substitution for dowel bars.
- H. Splices of lap reinforcement shall be full-contact splices.

3.05 PREPARATION

- A. The placing and securing of the reinforcement in any unit or section shall be accepted by the ENGINEER before any concrete is placed in any such unit or section.

3.06 REINFORCING STEEL PLACEMENT REVIEW

- A. A minimum of 24 hours prior to concrete placement, a final review of reinforcing steel placement for footings, slabs, columns, and walls of structures, will be performed by the ENGINEER.
- B. Perform a quality control review prior to the ENGINEER's final review in order to determine the acceptability, completeness, and clean-up of any sub-contractors work and overall readiness of the Work for the final review.
- C. If the CONTRACTOR has proceeded to place forms prior to the final review, the CONTRACTOR will be required to remove sufficient forms to permit the visual review of the reinforcing steel and appurtenances such as reinforcing steel supports, chairs, and ties at no cost to the OWNER.

END OF SECTION

SECTION 03 30 00

CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Concrete.
- B. Related Sections:
 - 1. SECTION 03 21 00 - REINFORCING STEEL
 - 2. SECTION 03 39 00 - CONCRETE CURING

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2. 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
 - 3. 301 - Specifications for Structural Concrete.
 - 4. 302.1R - Guide for Concrete Floor and Slab Construction.
 - 5. 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 - 6. 305 - Hot Weather Concreting.
 - 7. 306 - Cold Weather Concreting.
 - 8. 309 - Guide for Consolidation of Concrete.
 - 9. 347R - Guide to Formwork for Concrete.
- B. American Society for Testing and Materials (ASTM):
 - 1. C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - 2. C 33 - Standard Specification for Concrete Aggregates.
 - 3. C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - 4. C 88 - Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 - 5. C 94 - Standard Specification for Ready-Mixed Concrete.
 - 6. C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate.
 - 7. C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
 - 8. C 150 - Standard Specification for Portland Cement.
 - 9. C 192 - Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
 - 10. C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - 11. C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 12. C 295 - Standard Guide for Petrographic Examination of Aggregates for Concrete.
 - 13. C 311 - Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete.
 - 14. C 494 - Standard Specification for Chemical Admixtures for Concrete.
 - 15. C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
 - 16. C 1260 - Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar Bar Method).

- C. National Institute of Standards and Technology (NIST): Handbook No. 44, Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.
- D. CDOT Road and Bridge Specification.
- E. Bureau of Reclamation Guide to Concrete Repair, Second Edition

1.3 DEFINITIONS

- A. Defective Areas: Surface defects that include honeycomb, rock pockets, indentations, cracks 0.015-inch wide and larger, and cracks that leak in water-holding basins, spalls, chips, embedded debris, lift lines, sand lines, bleed lines, leakage from form joints, fins and other projections, form popouts, texture irregularities, and stains that cannot be removed by cleaning.
- B. New Concrete: Less than 60 days old.

1.4 SUBMITTALS

- A. Material Submittals:
 - 1. Design Data:
 - a. Concrete mix designs signed by a qualified mix designer. Mix designs shall include the recommended slump.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cementitious Materials:
 - 1. Cement:
 - a. Type II Portland cement conforming to ASTM C 150.
 - 2. Fly ash:
 - a. Class C or Class F fly ash conforming to ASTM C 618.
 - b. Make fly ash additions to the mix on a cement substitution basis in accordance with ASTM C 618.
 - c. The maximum allowable amount of fly ash: 20% by weight of total cementitious materials.
- B. Aggregates:
 - 1. General:
 - a. Furnish from one source.
 - b. Natural aggregates:
 - (1) Free from deleterious coatings and substances in accordance with ASTM C 33, except as modified herein.
 - (2) Free of materials and aggregate types causing popouts, discoloration, staining, or other defects on the surface of concrete.
 - c. Alkali reactivity of aggregates:
 - (1) In accordance with ASTM C 33, Appendix, Paragraph X1.3.4.
 - (2) Tested for reactivity in accordance with ASTM C 1260.
 - (3) A maximum of 0.10% expansion for any aggregate product used in Portland cement concrete.
 - d. Aggregate soundness:
 - (1) Test fine and coarse aggregates in accordance with ASTM C 33.
 - (2) Test fine and coarse aggregates in accordance with ASTM C 88 using a sodium sulfate solution.
 - 2. Fine aggregates:
 - a. Natural sand or a blend of natural sand and crushed sand.

- b. Crushed sand must be less than 50% of the total sand by dry weight.
 - c. Fine aggregates shall conform to the grading and quality requirements of ASTM C 33.
 - d. Except where otherwise designated or approved, fine aggregates shall be between 36% and 44% by volume of the total aggregates in the concrete.
 - e. Total materials passing No. 200 sieve: 4% maximum.
 - f. Deleterious substances:
 - (1) Table 1, ASTM C 33.
 - (2) 3% or less total deleterious material finer than No. 200 sieve.
 - (3) 0.5% or less coal and lignite.
3. Coarse aggregate:
- a. Natural gravels or crushed stone.
 - b. Conform to the grading and quality requirements of ASTM C 33 for size No. 57, No. 67, or No. 467.
 - c. Nominal maximum size of coarse aggregate: ACI 318/318R.
 - d. Limit deleterious substances in accordance with ASTM C 33, Table 3 for exposed concrete.
 - e. If the aggregates used are known to be reactive with high alkali cement, as determined by ASTM C 295, or if reactivity of aggregates is not known, use low alkali cement as defined in ASTM C 150, Table 2 to ensure adequate protection from a potential alkali-aggregate reaction.
- C. Admixtures:
- 1. General:
 - a. Furnish from one manufacturer.
 - b. Assume responsibilities for damage or difficulties occurring as result of the use of admixtures; additional compensation due to such difficulties is not permitted.
 - c. The use of admixtures does not relieve the CONTRACTOR of the responsibility for the protection and curing of concrete.
 - d. Compatible with other admixtures.
 - e. Free of chlorides or other corrosive chemicals.
 - f. Do not use calcium chloride.
 - 2. Air entraining admixture:
 - a. ASTM C 260, nontoxic after 30 days.
 - b. Use an air entraining agent in concrete.
 - c. Add to the batch in accordance with ASTM C 94.
 - d. Maintain the air percentage as batched, within plus or minus 1.5%, for the time required for placement into the structure.
 - 3. Water reducing admixtures: ASTM C 494, Type A or D.
 - 4. High range water reducing admixtures:
 - a. Use only where specified or directed by the ENGINEER.
 - b. ASTM C 494, Type F or G.
 - c. Use the furnish type recommended by the manufacturer for allowable temperature ranges.
 - 5. Shrinkage reducing admixtures: Not permitted.
- D. Water: ASTM C 94.

2.2 ACCESSORIES

- A. Crack Repair Epoxy: Get ENGINEER approval prior to use.
- B. Bonding Agent: Two-component type as recommended by the manufacturer for surface finish, pot life, set time, vertical or horizontal application, and forming restrictions.

- C. Patching Material:
 - 1. Free from chlorides and other chemicals causing steel corrosion.
 - 2. Low pressure silica fume mortar or polymer modified mortar: EMACO as manufactured by Master Builders Co.
 - 3. No Liquid Storage: EMACO R-Series.
 - 4. For Liquid Storage: EMACO S-Series.
 - 5. Match the color and texture of adjacent concrete.
- D. Hydrophilic caulk
 - 1. Adeka Ultra Seal P-201 by OCM, Inc.
 - 2. Leak Master - Water Swelling Sealant by C.I. Kasei Co., Ltd.
 - 3. SikaSwell S-2 by Sika Corporation
 - 4. Engineer approved equal
- E. Swellable Sealant
 - 1. Swellstop by Sika Corporation
 - 2. Engineer approved equal
- F. Anchor adhesive
 - 1. AnchorFix-2020 by Sika Corporation
 - 2. HIT-RE 100 Epoxy Anchor by HILTI
 - 3. Engineer approved equal

2.3 CONCRETE MIX DESIGN

- A. Design:
 - 1. Submit mix designs in accordance with ACI 301, Section 4.
 - 2. Water/cement plus pozzolans ratio (w/c+p): Control allowable water addition to the mix; do not exceed w/c+p ratio.
- B. Mixes:
 - 1. Structural Concrete (Class D):
 - a. Minimum 28 day compressive strength: 4,500 psi when molded and cured in compliance with ASTM C 31.
 - b. Cement content range: 615 to 660 pounds per cubic yard.
 - c. Maximum w/c+p ratio: 0.45.
 - d. Air content: 5 to 8% of the volume of the batch, tested in accordance with ASTM C 231.
 - 2. Bagged Concrete
 - a. Minimum 28 day compressive strength: 4,000 psi

2.4 CONCRETE MIXING

- A. Ready Mixed Concrete: ASTM C 94.
- B. Do not make changes in the amounts or sources of approved mix ingredients without the written approval of the ENGINEER.
- C. Concrete mix temperatures: ACI 306R (cold weather) and ACI 305 (hot weather).
- D. Reverse the rotation on the drum of truck mixers in order to discharge wash water prior to charging mixer.
- E. Add admixtures in accordance to ASTM C 94 and the manufacturer's instructions.
- F. Bagged Concrete shall be mixed according to manufacturers instructions.

PART 3 EXECUTION

3.1 PREPLACEMENT PREPARATION

- A. General
 - 1. Meet the requirements and recommendations of ACI 304R and ACI 301, except as modified herein.
 - 2. Secure reinforcement in position before placing concrete.
 - 3. Clean form surfaces and embedded items of foreign material prior to placing concrete.
 - 4. Remove water and debris from spaces that are to be occupied by concrete.
 - 5. Foundation and Subgrade preparation:
 - a. Subgrades and soil foundations below concrete placement areas shall be free of debris, properly moisture conditioned, firm, and unyielding prior to placement of concrete.
 - b. Rock foundations below concrete placement areas shall be clear of loose debris and rock prior to placement of concrete.
 - c. Bedding materials shown in the Drawings below concrete structures shall be placed, moisture conditioned, and compacted as specified in SECTION 31 23 23.
 - 6. Inspection:
 - a. Notify the ENGINEER at least 24 hours in advance of concrete placement.
 - b. Do not place concrete until forms, reinforcing steel, subgrade, and cleanup methods have been approved by the ENGINEER.
 - c. Notify the ENGINEER when reinforcing is ready for inspection and allow sufficient time for inspection prior to placing concrete.

3.2 CONCRETE PLACEMENT

- A. Discharge Time:
 - 1. Do not exceed 90 minutes after adding cementitious materials to the water unless approved time delay admixtures are used.
 - 2. Coordinate information with the admixture manufacturer and the ENGINEER prior to placing concrete.
- B. Placement into Formwork:
 - 1. Concrete shall not be placed on frozen subgrade or into forms with temperatures less than 34°F.
 - 2. Prior to the placement of concrete:
 - a. Dampen and density subgrade under the concrete to be placed on granular soils.
 - b. Dampen wood forms.
 - 3. Place concrete as soon as possible after it leaves the mixer.
 - 4. Place concrete without segregation or loss of ingredients.
 - 5. Place concrete without splashing forms or the steel above.
 - 6. Place concrete in layers that are not over 18 inches in depth, except place slabs full depth.
 - 7. Place and consolidate successive layers of concrete prior to the initial set of the first layer to prevent cold joints.
 - 8. Place concrete so that plastic concrete flows readily between reinforcing steel and other embedded items.
 - 9. Do not place concrete that has partially hardened or is contaminated by foreign materials.
 - 10. Use placement devices, including chutes, pouring spouts, and pumps.
 - 11. Vertical free fall drop to final placement:
 - a. 5 feet in forms, 8 inches or less wide and 8 feet in forms wider than 8 inches, except as otherwise specified.
 - b. Self consolidating mixes: Up to 15 feet if slump is over 6 inches.

- c. For placements where drops are greater than the specified distance, use a placement device so that free fall below placement device conforms to the required value.
 - d. Limit free fall in order to prevent segregation that is caused by aggregates hitting reinforcing steel or other embedded items.
- 12. Do not use aluminum conveying devices.
- 13. Prevent the accumulation of water on the surface of concrete due to water gain or other causes during placement and consolidation by making adjustments in the mix design.
- C. Conveyor Belts and Chutes:
 - 1. Design and arrange the ends of chutes, hopper gates, and other points of concrete discharge throughout the conveyance, the hoisting, and the placing system in order for concrete to pass without becoming segregated.
 - 2. Do not use chutes longer than 50 feet.
 - 3. Angle chutes to allow concrete to readily flow without segregation with as little slope as possible.
 - 4. Conveyor belts:
 - a. Approved by the ENGINEER.
 - b. Wipe clean with a device that prevents mortar from adhering to the belt.
 - c. Cover conveyor belts and chutes.
- D. Addition of Water at the Site:
 - 1. Permitted only once and within 60 minutes of the initial batching.
 - 2. Do not exceed w/c+p ratio of mix.
 - 3. If hydration stabilizing admixtures are used, submit the brand, type and anticipated dosage rates to the ENGINEER prior to placement.
 - 4. Provide an accurate means to determine and measure the volume of water added to the mix.
- E. Addition of air entraining admixtures at Site:
 - 1. Addition of air entraining admixtures to concrete batch at site will be allowed only once per truck when approved by the ENGINEER
 - 2. After air entraining admixture is added, concrete shall be mixed for a minimum of 30 revolutions of mixer drum at mixing speed.
 - 3. Take slump and air content after air-entraining admixture addition and additional revolutions
 - 4. Record added air entraining admixture on batch ticket to the nearest ounce.
- F. Curing: Refer to SECTION 03 39 00.

3.3 GENERAL PLACEMENT SPECIFICATIONS

- A. Hot Weather:
 - 1. Conform to ACI 305R.
 - 2. Maintain concrete temperature below 90°F at time of placement.
 - 3. Ingredients may be cooled before mixing. The method of cooling concrete is to conform to ACI 305R and be approved by the ENGINEER.
 - 4. When the rate of surface evaporation approaches 0.20 pounds per square foot per hour for non-fly ash concrete mixes, and 0.15 pounds per square foot per hour for concrete mixes containing more than 15% fly ash as estimated by the ENGINEER from ACI 305R, Figure 2.1.5, make provisions for windbreaks, shading, fog spraying, sprinkling, ice, or wet cover as required by the ENGINEER before and during concrete placement
 - 5. If the rate of evaporation approaches 0.20 pounds per square foot per hour as estimated by ACI 305R, precautions against plastic shrinkage are required.

6. Provide a recording thermometer, hygrometer and wind gauge in operating condition on-site 7 days prior to the first concrete placement.
 7. Precautions against plastic shrinkage cracks may be required in conditions other than what are normally considered hot weather conditions.
 8. If reinforcement is in direct sunlight or is more than 20°F higher in temperature than the concrete temperature before placement, wet the reinforcement with a water fog spray before placing concrete in order to cool the reinforcement.
 9. Do not cool plastic concrete mixtures without the approval of the ENGINEER.
 10. Evaporation retardant: Refer to SECTION 03 39 00.
- B. Cold Weather:
1. Do not place concrete against frozen earth or ice, or against forms and reinforcement with frost or ice present.
 2. Prevent carbonation on unprotected new concrete surfaces.
 3. Conform to methods in ACI 306, including maintaining the temperature of concrete as specified.
 4. Provide maximum and minimum thermometers placed on concrete surfaces and spaced throughout Work to allow the monitoring of concrete surface temperatures that are representative of the Work.
 5. Maintain concrete temperature above 55°F at the time of placement.
 6. Maintain concrete temperature between 55°F and 70°F for the entire curing period.
 7. External heating units:
 - a. Provide heated enclosures when air temperatures are below 40°F.
 - b. Vent heating units to the atmosphere and do not locally heat or dry concrete. Where water cure is specified, maintain a wet condition.
 - c. Do not exhaust flue gases directly into enclosed area.
 8. Do not warm plastic concrete mixtures without the approval of the ENGINEER.
 9. Maintain curing conditions as specified in SECTION 03 39 00.

3.4 CONSTRUCTION JOINTS

- A. Surface Preparation:
1. Clean the surface of concrete construction joints and remove materials that inhibit bonding.
 2. Wet existing concrete surfaces with clean potable water and saturate for 24 hours prior to placing new concrete.
 3. Remove standing water immediately before new concrete is placed.
- B. Joint Sealant
1. Apply ENGINEER approved sealant per manufacturer's recommendation in water bearing structures.

3.5 PATCHING

- A. General:
1. Where indicated, inject cracks with crack repair epoxy
 2. Prior to starting patching work, obtain quantities of color-matched patching material and the manufacturer's detailed instructions for use.
 3. Provide a structural patch with a finish to match the adjacent surface.
 4. Dress the surface of patches that will remain exposed to view to match the color and texture of adjacent surfaces by using supplemental materials furnished by the manufacturer for such purposes or by rubbing the area until a match is obtained.
 5. Patch concrete to provide a structurally sound surface finish that is uniform in appearance.
 6. Repair surface defects including fins, tie holes and honeycombed areas down to solid

concrete in accordance with ACI 301.

- B. Tie Holes:
 - 1. Fill with epoxy grout, except where sealant is shown; install according to manufacturer's recommendations.
 - 2. For areas exposed to view and not receiving a sack rubbed finish, blend to the color and texture of the adjacent concrete.
 - 3. Compact grout using a steel hammer and a steel tool to drive grout to high density.
 - 4. Cure grout for 7 days at a minimum.
- C. Alternate Form Ties-Through-Bolts:
 - 1. Seal through-bolt hole by sandblasting or mechanically cleaning and roughening the entire interior surface of hole.
 - 2. Epoxy coat roughened surface.
 - 3. Drive elastic vinyl plug and then dry pack entire hole on each side of plug with Category II grout in accordance with SECTION 03 62 00. Use only enough water to dry pack the grout.
 - 4. Dry pack while the epoxy is still tacky or remove the epoxy by mechanical means and reapply new epoxy.
 - 5. Compact grout using a steel hammer and a steel tool to drive grout to high density.
 - 6. Cure grout for 7 days at a minimum.
- D. Defective Areas:
 - 1. Repair methods for defective areas shall be approved by Engineer and SEO prior to proceeding but shall generally conform to the Bureau of Reclamation Guide to Concrete Repair, second edition.
- E. Blockouts at Penetrations:
 - 1. Conform to details indicated on Drawings, or submit proposed blockouts for the review and approval of the ENGINEER.
 - 2. Use non-shrink, nonmetallic grout, Category I or II.

3.6 CONCRETE WALL FINISHES

- A. Type W-1 (Ordinary Wall Finish):
 - 1. Patch tie holes.
 - 2. Knock off projections.
 - 3. Patch defective areas.

3.7 CONCRETE SLAB FINISHES

- A. General:
 - 1. Finish slab concrete in accordance with ACI 302.1R.
 - 2. Do not use "jitterbugs" or other special tools designed for purpose of forcing coarse aggregate away from surface and allowing layer of mortar to accumulate.
 - 3. Do not dust surfaces with dry materials.
 - 4. Round off edges of slabs with ¼-inch radius steel edging tool for slabs subject to wheeled traffic.
 - 5. Use evaporation retardant only where specifically approved by ENGINEER. Where approved for use, follow manufacturer's instructions and precautions.
 - 6. Do not apply water to concrete surface during any phase of finishing operations.
 - 7. Do not perform concrete finishing while water is present on surface.
- B. Type S-1 (Steel Troweled Finish):
 - 1. Finish by screeding and floating with straight edges to bring surfaces to required finish elevation.

2. While concrete is still green but sufficiently hardened to bear a person's weight without deep imprint, wood float to true, even plane without visible coarse aggregate.
3. Use sufficient pressure on wood floats to bring moisture to surface.
4. After surface moisture has disappeared, hand trowel concrete to produce smooth, impervious surface, free from trowel marks.
5. Burnish surface with an additional troweling.
6. Final troweling to produce ringing sound from trowel.
7. Do not use dry cement or additional water during troweling, nor excessively trowel.
8. Power finishing:
 - a. An approved power machine may be used in lieu of hand finishing in accordance with directions of machine manufacturer.
 - b. Do not use power machine when concrete has not attained necessary set to allow finishing without introducing high and low spots in slab.
 - c. Do first steel troweling for slab S-1 finish by hand.

3.8 BACKFILL AGAINST WALLS

- A. Do not backfill against walls until concrete has obtained 80% of the specified 28 day compressive strength.
- B. Place backfill simultaneously on both sides of the wall, where required, to prevent differential pressures.

3.9 FIELD QUALITY CONTROL

- A. General:
 1. Field quality control will be performed by the OWNER.
 2. Provide access, cooperation, and incidental labor required by the OWNER to obtain specimens, perform tests, and conduct inspections.
 3. Provide facilities for safe storage and the proper curing of concrete test cylinders on-site for the first 48 hours, and for additional time as required before transporting to the testing laboratory.
 4. Provide concrete for the testing of slump, air content, and for making cylinders from the point of discharge into forms.
 5. When concrete is pumped, take samples from the discharge end of the mixer truck prior to entering the hopper and from the discharge end of the pump truck hose.
 6. Evaluation will be in accordance with ACI 301, Chapter 17, and Specifications. Where the term "building official" is used, the term shall be redefined to ENGINEER.
 7. Specimens will be made, cured, and tested in accordance with ASTM C 31 and ASTM C 39.
 8. The frequency of testing may be changed at the discretion of the ENGINEER.
 9. Pumped concrete: Take concrete samples for slump (ASTM C 143) and test cylinders (ASTM C 31 and C 39).
 10. Assist in obtaining samples and provide undisturbed testing areas with 120V AC power.
- B. Compression Test Specimens:
 1. Tests will be performed by the ENGINEER.
 2. Specimens will be fabricated, cured, and tested in accordance with ASTM C 192.
 3. One specimen will be tested at 7 days and two at 28 days. One specimen will be retained for a later break date.
- C. Enforcement of Strength Requirements:
 1. Should the strengths shown by laboratory cured test cylinders that are made and tested in accordance with the provisions of the Standard Specifications and evaluated by methods in accordance with ACI 318/318R fall below specified values, the ENGINEER may require changes in the proportions of concrete mix used on the

- remainder of Work.
2. The ENGINEER may require the CONTRACTOR to provide a minimum of three cores drilled in accordance with ASTM C 42 and tested for compressive strength in accordance with ASTM C 39 for each portion of Work in which laboratory cured concrete test cylinders indicate a failure to meet the specified strength requirements within the specified time period.
 3. The ENGINEER may require the CONTRACTOR to remove and replace areas that are determined to be defective.
- D. Tolerances:
1. Walls: Measure and inspect walls for compliance with tolerances specified in SECTION 03 10 00.
 2. Slabs:
 - a. Floor flatness measurements will be made the day after the floor is finished and before shoring is removed, in order to eliminate the effects of shrinkage, curing, and deflection.
 - b. Support 10 foot long straightedge at each end with steel gauge blocks of thicknesses equal to the specified tolerance.
 - c. Compliance with designated limits in four of five consecutive measurements is satisfactory unless defective conditions are observed.

3.10 PROTECTION OF INSTALLED WORK

- A. After curing as specified in SECTION 03 39 00, and after applying final floor finish, cover slabs with plywood, particle board, plastic sheeting or other material to keep the floor clean and to protect it from material and damage due to other construction work.
- B. Patch and repair defective areas and areas damaged by construction.

END OF SECTION

SECTION 33 39 00

CONCRETE CURING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Concrete Curing.

1.02 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 305 - Hot Weather Concreting.
 - 2. ACI 306 - Cold Weather Concreting.
 - 3. ACI 308 - Standard Practice for Curing Concrete.
- B. American Society for Testing Materials (ASTM):
 - 1. C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - 2. C 1315, Standard Specification for Liquid Membrane - Forming Compounds. Having Special Properties for Curing and Sealing Concrete.
 - 3. D 2103 - Polyethylene Film and Sheeting.

PART 2 PRODUCTS

2.01 MATERIALS

- A. White burlap-polyethylene sheet (Burlene):
 - 1. Minimum weight: 10 ounces/linear yard.
 - 2. Minimum width: 40 inches.
 - 3. Polyethylene:
 - a. Securely bonded to burlap with no separation.
 - b. Minimum thickness: 0.004 inches in accordance with ASTM D 2103.
- B. Curing Compound:
 - 1. Sources:
 - a. Kure 1315 by BASF Building Systems.
 - b. Super Diamond Clear VOX by Euclid Chemical Co.
 - 2. Description: Water-based, high solids content, non-yellowing curing compound meeting requirements of ASTM C 309 and ASTM C 1315.
 - a. Moisture Loss: 0.55 kg/m² in 72 hours.
 - b. Capable of meeting moisture retention at manufacturer's specified application rate.
- C. Evaporation Retardant:
 - 1. Sources:
 - a. CONFILM by BASF Building Systems.
 - b. Eucobar by Euclid Chemical Co.
 - 2. Description: Fluorescent color tint that disappears completely upon drying.
 - 3. Use only with written approval.
- D. Clear floor Sealer/Hardener
 - 1. Sources:
 - a. Eucosil by Euclid Chemical Co.
 - b. Kure-N-Harden by BASF Building Systems.
 - 2. Description: Colorless, inorganic silicate-based compound manufactured specifically to harden, seal and dustproof concrete surfaces.
 - 3. Do not use sealer/hardener as a curing compound. Prior to application, water cure concrete surfaces to receive sealer/hardener as specified.

- E. Water: Clean and potable, containing less than 50 ppm chlorides.

PART 3 EXECUTION

3.01 CURING OF CONCRETE

- A. GENERAL
 - 1. Cure concrete in accordance with ACI 305, 306, and 308 as applicable.
- B. Submit the method for approval for each of the following:
 - 1. Walls, Beams, and Columns:
 - a. General: Where walls, beams or columns are to receive coatings, painting, cementitious material, or other similar finishes, or where solvent-based coatings are not permitted, use only water curing procedures.
 - b. Method 1:
 - 1) Leave concrete forms in place.
 - 2) Keep entire surfaces of forms and concrete wet for 7 days.
 - c. Method 2:
 - 1) Apply curing compound, where allowed, immediately after removal of forms.
 - d. Method 3:
 - 1) Continuously sprinkle with water 100% of exposed surfaces for 7 days starting immediately after the removal of forms.
 - 2. Slabs and Curbs:
 - a. Commence concrete curing of slabs and curbs immediately after final finishing so as not to damage surface.
 - b. Method 1: Protect surface by water ponding with water a maximum of 25°s cooler than the concrete surface temperature for 7 days.
 - c. Method 2: Cover with burlap or cotton mats and keep continuously wet for 7 days.
 - d. Other approved method that will keep moisture present and uniform at all times on surface of slabs and curbs.
 - e. Where water curing for slabs and curbs during cold weather is not possible, use approved curing compound at the manufacturer's recommended coverage per gallon.
 - f. Where the curing compound cannot be used, gain approval for special methods using moisture prior to placing concrete for slabs and curbs.
 - g. Protect slabs during cold weather with plastic sheets or other material inside the required heated enclosure if foot traffic is permitted on slabs.
- C. Use only water curing where additional finishes such as sealer/hardener, painting, and other special coatings are required.
- D. The curing system must remain in place and be maintained for a duration of 7 days following placement.
- E. No construction, dead, or live loads are to be applied to new concrete until field cylinders indicate a minimum compressive strength of 80% of design strength or 7 days at a minimum.

3.02 EVAPORATION RETARDANT APPLICATION

- A. Spray onto surface of fresh flatwork concrete immediately after screeding to react with surface moisture as directed by the manufacturer.
- B. Reapply in accordance with the manufacturer's requirement.

END OF SECTION

SECTION 05 10 00

MISCELLANEOUS METALS

PART 1 GENERAL

1.01 RELATED SECTIONS

- A. SECTION 03 30 00 - CONCRETE

1.02 REFERENCES

- A. ASTM International (ASTM):
1. A 36/A 36M - Standard Specification for Carbon Structural Steel.
 2. A 123/A 123M - Standard Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products.
 3. A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 4. A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 5. F 844 - Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use.
 6. B221-08 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

1.03 SUBMITTALS

- A. Submit Drawings detailing fabrication and erection of each metal fabrication indicated. Reproductions of Construction Drawings will not be accepted for this purpose.
- B. Include plans, elevations, sections and details of metal fabrications and their connections. Show anchorage and accessory items.
- C. Indicate welded connections using standard AWS welding symbols. Clearly indicate net weld lengths, sizes and welding sequences.
- D. Provide manufacturer's data sheets, handling and installation instructions for concrete anchors.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Unless otherwise indicated on the DRAWINGS, materials shall meet the requirements in Table 05 10 00-1, Table 05 10 00-2, and the following paragraphs:
- B. Table 05 10 00-1 Structural Steel, Miscellaneous Metalwork and Embedments:

ITEM	SPECIFICATION
Steel Shapes and Plates:	
Steel Plate: Trashrack	ASTM A 242
Other Shapes and Plates: Trashrack angle	ASTM A 36 or ASTM A 992
Steel Pipe: Trashrack, Air Vent	ASTM A 501 or A 53, Type E or S, Grade B
Structural Steel Tubing: Trashrack	ASTM A 500, Grade B
Aluminum Tubing/Pipe: 8" dia pipe in spillway, staff gage	ASTM B221-08 Grade 6061 or 6063
Bolts and Threaded Rods	ASTM A 193, AISI Type 316 or 304, B8M, B8MN, B8M2 or B8M3
Nuts	ASTM A 194, AISI Type 316, 8M, 8MN, 8M2

	or 8M3
Steel Bolts, Nuts and Washers: Carbon Steel High-Strength Galvanized Steel Bolts and Nuts	ASTM A 307 or A 36 ASTM A 325, Type 1 ASTM A 307 or A 36, with ASTM A 153 zinc coating and ANSI B1.1
Machine Bolts Lag Bolts Flat Washers (Unhardened) Flat Washers (Hardened) Lock Washers (Helical Spring Type, Galvanized Steel)	Federal Specification FF-B-575, Grade 5 ASME B18.21.1 ASTM F 844; use A 153 zinc coating ASTM F 436 Federal Specification FF-W-84A

- C. Drilled Anchors:
1. Unless otherwise indicated on the Construction Drawings, drilled anchors shall be hot-dipped galvanized or type 316 or 304 stainless as manufactured by ITW Ramset/Redhead, Hilti, or equal. Anchors shall have ICBO-approved testing.
- D. Coatings
1. Steel fabrications shall be either hot dip galvanized or painted with a 2-part epoxy intended for submerged service applications.

PART 3 EXECUTION

3.01 STORAGE OF MATERIALS

- A. Store material, either plain or fabricated, above ground on platforms, skids, or other supports. Keep material free from dirt, grease, and other foreign matter and protect from corrosion.

3.02 FABRICATION AND ERECTION

- A. Fabricate miscellaneous metal items to straight lines and true curves. Drilling and punching shall not leave burrs or deformations.
- B. Continuously weld permanent connections along the entire area of contact.
- C. Joints shall have a close fit with corner joints coped or mitered and shall be in true alignment. Unless specifically indicated on the Construction Drawings, there shall be no bends, twists, or open joints in any finished member nor any projecting edges or corners at intersections.

3.03 WELDING

- A. Perform welding on steel by the shielded metal arc welding (SMAW) process. Welding shall conform to the AWS Structural Welding Code-Steel, D1.1, except as modified in AISC Section J2.
- B. Provide a minimum of two passes for metal in excess of 5/16-inch thickness.
- C. Produce weld uniform in width and size throughout its length with each layer of weldment smooth; free of slag, cracks, pinholes, and undercuttings; and completely fused to the adjacent weld beads and base metal. Avoid irregular surface, nonuniform bead pattern, and high crown. Form fillet welds of the indicated size of uniform height and fully penetrating. Accomplish repair, chipping, and grinding of welds in manner that will not gouge, groove, or reduce the base metal thickness.

3.04 INSTALLING BOLTS

- A. Two nuts shall be provided for each bolt to prevent self-loosening.
- B. Provide sufficient bolt length to allow for double nut tightening of each bolt. Bolts shall be of the length that will extend entirely through but not more than 1/4 inch beyond the nuts.

- C. Draw boltheads and nuts tight against the work
- D. Tap boltheads with a hammer while the nuts are being tightened.

3.05 INSTALLING ANCHOR BOLTS

- A. After anchor bolts have been embedded, protect projecting threads by applying grease and having the nuts installed until the time of installation of the equipment or metalwork.
- B. Minimum depth of embedment of adhesive anchors shall be as recommended by the manufacturer, but no less than that shown on the Construction Drawings and no less than 12 bolt diameters.
- C. Epoxy anchor bolts shall be installed according to manufacturer's specifications.

3.06 ANCHORING SYSTEMS FOR CONCRETE

- A. Begin installation only after concrete or masonry receiving anchors has attained design strength.
- B. Do not install an anchor closer than six times its diameter to either an edge of concrete, or to another anchor, unless shown otherwise.
- C. Install anchors in accordance with manufacturer's instructions. Hole diameters are critical to installation, use only drills recommended by anchor manufacturer.
- D. Follow specific manufacturer's safe handling practices when handling and installing anchors.

3.07 CONTROL OF FLAME CUTTING

- A. Do not use a gas-cutting torch in the field for correcting fabrication errors on any member in structural framing. Use a gas-cutting torch only on minor members when the member is not under stress.

3.08 REPAIR OF GALVANIZED SURFACES

- A. Repair or replace metal with damaged galvanized surfaces at no additional cost to the OWNER. Accomplish repair of galvanized surfaces by use of DRYGALV by the American Solder and Flux Company, Paoli, PA; Cold Galvanizing Repair Compound by Rust-Oleum; or equal. Prepare surfaces and apply in accordance with the manufacturer's instructions.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures for general excavation and trench preparation for installing pipe.
- B. Related Sections:
 - 1. SECTION 31 23 19 - DEWATERING

1.02 QUALITY ASSURANCE

- A. Provide adequate survey control to avoid unauthorized over-excavation.

1.03 SEQUENCING AND SCHEDULING

- A. Excavation Support: Install and maintain to support the sides of excavations and prevent the detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work.
- B. Dewatering: Conform to applicable requirements of SECTION 31 23 19, prior to initiating excavation.

1.04 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Do not use material excavated when frozen or when air temperature is less than 32°F until material completely thaws.
 - 2. Do not use material excavated during inclement weather until after the material drains and dries sufficiently for proper compaction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Excavate to lines, grades, and dimensions shown and as necessary to accomplish Work.
- B. Excavate to within a tolerance of ± 0.1 foot except where dimensions or grades are shown or specified as maximum or minimum.
- C. Allow for forms, working space, granular base, topsoil, and similar items, where applicable.
- D. Trim to neat lines where concrete is to be placed against earth.
- E. Do not over-excavate without written authorization.
- F. Stockpile topsoil removed during excavation to be applied after backfill operations.

3.02 EMBANKMENT AND CUT SLOPES

- A. Shape, trim, and finish cut slopes to conform to the lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.
- B. Remove stones and rock that exceed 3 inches in diameter and that are loose and may roll down slope.
- C. Remove exposed roots from cut slopes.
- D. Round tops of cut slopes in the soil to not less than a 6 foot radius, provided such rounding

does not extend off-site or outside easements and rights-of-way, adversely impact existing facilities, adjacent property, or completed Work.

- E. Construct berms around the tops of excavations in order to provide protection from surface runoff entering excavation.

3.04 STOCKPILING EXCAVATED MATERIAL

- A. Stockpile excavated material suitable for use as fill or backfill until the material is needed.
- B. Post Signage:
 - 1. Indicate the proposed use of material stockpiled.
 - 2. Clearly worded and readable by equipment operators from a normal seated position from all directions of approach to each stockpile
- C. Confine stockpiles within approved areas.
- D. Do not obstruct roads or streets.
- E. Do not stockpile excavated material adjacent to trenches and other excavations unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.
- F. Do not stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if the weight of stockpiled material could induce excessive settlement.

END OF SECTION

WATER CONTROL AND DEWATERING

PART 1 PART 1 - GENERAL

1.1 SUMMARY

- A. The WORK of this section consists of controlling groundwater, site drainage, and storm flows during construction.

1.2 REFERENCES

- A. State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer, Dam Safety
1. Rules and Regulations for Dam Safety and Dam Construction

1.3 SUBMITTALS

- A. CONTRACTOR must submit a Water Control and Dewatering plan to the ENGINEER and STATE ENGINEER OFFICE for review and approval prior to construction in accordance with Rule 8.1.1 of the SEO's Rules and Regulations.

PART 2 PART 2 - PRODUCTS

2.1 MATERIALS

- A. On-site materials may be used within the limits of construction to construct temporary dams and berms. Materials such as plastic sheeting, sandbags, and storm sewer pipe may also be used if desired by CONTRACTOR.

PART 3 EXECUTION

3.1 General.

- A. For all excavation, CONTRACTOR shall provide suitable equipment and labor to remove water, and he shall keep the excavation dewatered so that construction can be carried on under dewatered conditions. Water control shall be accomplished such that no damage is done to adjacent channel banks or structures. CONTRACTOR is responsible for investigating and becoming familiar with all site conditions that may affect the work including surface water, potential flooding conditions, level of groundwater and the time of year the work is to be done. All excavations made as part of dewatering operations shall be backfilled with the same type material as was removed and compacted to ninety five percent (95%) of Maximum Standard Proctor Density (ASTM D698) except where replacement by other materials and/or methods are required.
- B. CONTRACTOR shall conduct operations in such a manner that storm, or other waters may proceed uninterrupted along their existing drainage courses. By submitting a bid, CONTRACTOR acknowledges that CONTRACTOR has investigated the risk arising from such waters and has prepared his bid accordingly and assumes all of said risk.
- C. At no time during construction shall CONTRACTOR affect existing surface or subsurface drainage patterns of adjacent property. Any damage to adjacent property resulting from CONTRACTOR's alteration of surface or subsurface drainage patterns shall be repaired by CONTRACTOR at no additional cost to OWNER.
- D. CONTRACTOR shall remove all temporary water control facilities when they are no longer needed or at the completion of the PROJECT.
- E. Pumps and generators used for dewatering and water control shall be quiet equipment enclosed in sound deadening devices.

3.2 Surface Water Control.

- A. Surface water control generally falls into the following categories:
 - 1. Normal low flows along the channel
 - 2. Storm/flood flows along the channel
 - 3. Flows from existing storm drain pipelines; and
 - 4. Local surface inflows not conveyed by pipelines
- B. CONTRACTOR shall coordinate, evaluate, design, construct, and maintain temporary water conveyance systems. These systems shall not worsen flooding, alter major flow paths, or worsen flow characteristics during construction. CONTRACTOR is responsible to ensure that any such worsening of flooding does not occur. CONTRACTOR is solely responsible for determining the methods and adequacy of water control measures.
- C. At a minimum, CONTRACTOR shall be responsible for diverting the quantity of surface flow around the construction area so that the excavations will remain free of surface water for the time it takes to install these materials, and the time required for curing of any concrete or grout. CONTRACTOR is cautioned that the minimum quantity of water to be diverted is for erosion control and construction purposes and not for general protection of the construction-site. It shall be CONTRACTOR's responsibility to determine the quantity of water which shall be diverted to protect the WORK from damage caused by stormwater.
- D. CONTRACTOR shall, at all times, maintain a flow path for all channels. Temporary structures such as berms, sandbags, pipeline diversions, etc., may be permitted for the control of channel flow, as long as such measures are not a major obstruction to flood flows, do not worsen flooding, or alter historic flow routes.

3.3 Groundwater Control.

- A. CONTRACTOR shall install adequate measures to maintain the level of groundwater below the foundation subgrade elevation and maintain sufficient bearing capacity for all structures, pipelines, earthwork, and rock work. Such measures may include, but are not limited to, installation of perimeter subdrains, pumping from drilled holes or by pumping from sumps excavated below the subgrade elevation. Dewatering from within the foundation excavations shall not be allowed. The foundation bearing surfaces are to be kept dewatered and stable until the structures or other types of work are complete and backfilled. Disturbance of foundation subgrade by CONTRACTOR operations shall not be considered as originally unsuitable foundation subgrade and shall be repaired at CONTRACTOR's expense.
- B. Any temporary dewatering trenches or well points shall be restored following dewatering operations to reduce permeability in those areas as approved by OWNER'S REPRESENTATIVE.

END OF SECTION

SECTION 31 23 23

FILL AND BACKFILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Furnishing and installing fill material.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. C 33, Standard Specification for Concrete Aggregates
 - 2. D 75, Standard Practice for Sampling Aggregates.
 - 3. D 422, Standard Test Method for Particle-Size Analysis of Soils.
 - 4. D 698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort 12,400 ft-lbf/ft³ (600 kN-m/m³).
 - 5. D 1241, Standard Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
 - 6. D 1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 7. D 2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 8. D 4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - 9. D 4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- B. Site specific geotechnical reports as part of the Project Contract Documents.

1.3 DEFINITIONS

- A. Compaction:
 - 1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM D 698.
 - 2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by the ENGINEER.
- B. Optimum Moisture Content: Moisture content as determined by ASTM D 698.
- C. Relative Density: Calculated in accordance with ASTM D 1556 based on the maximum index density determined in accordance with ASTM D 4253 and the minimum index density determined in accordance with ASTM D 4254.
- D. Completed Course: Course or layer ready for the next layer or next phase of Work, free from irregularities with a smooth, tight, even surface, true rolling, and cross section.
- E. Lift: The loose, uncompacted, layer of material.
- F. Well-Graded: A good representation of particle sizes from largest to smallest.
- G. Influence Area: The area within planes sloped downward and outward at a 60° angle from horizontal measured from 5 feet outside the proposed structure lines as shown on Drawings.
- H. Borrow Material: Material from required excavations or from designated borrow areas on or near the site.
- I. Selected Backfill Material: Materials that may be available on-site that the ENGINEER determines to be suitable for specific use.
- J. Imported Material: Materials obtained from sources off-site that are suitable for specified use.
- K. Structural Fill: Fill materials as required under and around structures and pavements.
- L. Embankment Material: Fill materials required to raise existing grade in areas other than under structures and pavements.
- M. Fines: Materials passing No. 200 sieve as determined in accordance with ASTM D 422.

- N. Certified/Certification: Reviewed, approved, stamped, and signed by a Professional Engineer registered in State of Colorado.
- O. Pipe Backfill Zone: The backfill zone described as the area within 12 inches of the pipe extending along the entire length of the outlet pipe.

1.4 SUBMITTALS

- A. Quality Control Submittals:
 - 1. Manufacturer's data sheets for compaction equipment
 - 2. Certified test results and the name and location of the source for each imported material.
 - 3. Submit a gradation analysis for all imported material.

1.5 QUALITY ASSURANCE

- A. Notify the ENGINEER when:
 - 1. The foundation excavation and subgrade preparation for foundation has been completed.
 - 2. Any structure is ready for backfilling, and whenever backfilling operations are initiated, or resumed after a period of inactivity.
 - 3. Soft or loose subgrade materials are encountered wherever embankment or site fill is to be placed.
 - 4. Fill material deviates from the Specifications.
 - 5. Fill is about to be placed on a prepared foundation, or when fill operations are resumed after a period of inactivity.
 - 6. The initial sampling of the imported material source is to be conducted or the importing of material to Project site is to begin.

1.6 SEQUENCING AND SCHEDULING

- A. Backfill against concrete structures only after concrete has attained 80% of design compressive strength as specified in SECTION 03 30 00

1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not place fill or backfill, if fill or backfill material is frozen, or if the surface upon which fill or backfill is to be placed is frozen.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Embankment Fill:
 - 1. Material removed during excavation shall be disposed of in the borrow/waste area unless otherwise directed by the ENGINEER.
 - 2. Embankment fill shall be sourced from borrow areas as indicated in the DRAWINGS or as directed by the ENGINEER.
 - 3. Shall be classified as SC materials according to USCS classification system unless otherwise approved by ENGINEER.
 - 4. Shall have a Plasticity Index equal to or greater than 10.
 - 5. Shall have a maximum individual particle size of 3 inches, except within the pipe backfill zone specified on the plans where the maximum particle size is limited to 1 inch.
- B. Filter Sand: Filter sand shall conform to ASTM C33 specifications for fine concrete

aggregate.

US Standard Sieve Size	Percent Passing
3/8"	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	5-30
No. 100	0-10
No. 200	0-2

- C. Filter Gravel(Gravel Bedding): Filter gravel shall conform to ASTM specifications for No. 57 or 67 coarse aggregate.

US Standard Sieve Size	Percent Passing	
	No. 57	No.67
1.5"	100	
1"	95-100	100
3/4"		90-100
1/2"	25-60	-
3/8"		20-55
No. 4	0-10	0-10
No. 8	0-5	0-5

2.2 SOURCE QUALITY CONTROL

- A. Gradation Analysis:
1. The ENGINEER may perform to verify submitted material.
 2. Perform as necessary to locate acceptable sources of imported material.
 3. During the production of imported material, the performance of testing will be dependent upon the consistency of material sources.

PART 3 EXECUTION

3.1 GENERAL

- A. Keep placement surfaces free of water, debris, and foreign material during the placement and compaction of fill and backfill materials.
- B. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, unless specified otherwise. Place and spread fill and backfill materials in a manner that avoids segregation and compact each lift to specified densities prior to placing succeeding lifts.
- C. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.
- D. Foundation and Cut Slope Preparation:
 1. Excavated cut slopes and soil foundations to receive fill or backfill shall be prepared by scarifying 6 inches (minimum), moisture conditioning, and compaction.
 2. Rock foundations to receive fill or backfill shall be clear of loose debris and rock prior to placement of any fill or backfill materials.
 3. Cut slopes and foundations shall be firm and unyielding prior to placement of fill or backfill materials.
 4. ENGINEER and SEO PERSONNEL shall inspect and approve excavated cut slopes and foundations prior to placement of any fill materials.

5. ENGINEER shall map any unsuitable foundation material encountered during the project on the as-built Drawings.
- E. Tolerances:
1. Final Lines and Grades: Within a tolerance of +/-0.10-foot unless dimensions or grades are shown or specified otherwise.
 2. Grade to establish and maintain slopes and drainage as shown.
 3. Reverse slopes are not permitted.
- F. Moisture Control and Conditioning:
1. During compacting operations, maintain the optimum practicable moisture content required for compaction purposes in each lift of fill.
 2. At the time of compaction, the water content of material shall be at the specified optimum moisture content.
 3. Do not attempt to compact fill materials that contains excessive moisture.
 4. Remove or rework material that becomes too wet.
 5. Aerate material by blading, disking, harrowing, or other methods to promote the drying process.
 6. Placement surfaces shall be moisture conditioned prior to the placement of embankment fill or backfill.
- G. No frozen fill shall be used during backfill operations and backfill shall not occur on frozen surfaces.
- H. Fill placement shall be stopped temporarily during unsuitable weather conditions as directed by the engineer.
- I. Correct the settlement of fill and backfill material and damage to structures, pavement, curbs, slabs, piping, and other facilities that results from Work.

3.2 EMBANKMENT FILL

- A. General:
1. Excavation area shall be cleared of all vegetation prior to stockpiling material for embankment fill. Cleared vegetation shall not be used during backfill placement.
 2. Prepare placement areas by scarifying 6 inches (minimum) into placement surfaces, moisture conditioning, and compaction of sub-grade material. Placement surfaces shall be firm and unyielding prior to placing any embankment fill materials.
 3. Embankment fill shall be placed in 9-inch loose lifts or less.
 4. Lifts shall be placed longitudinally, parallel to the centerline of the dam. Except for fill placed within the encasement zone which shall be placed parallel to the encasement alignment. Placement of fill perpendicular to the dam crest may be allowed in local areas along structures.
 5. Provide blades, discs, or other supplementary equipment as necessary to blend non-uniform fill materials and for scarifications of completed courses.
 6. The moisture content of placed embankment fill at the time of compaction shall be within +/- 2% of optimum according to ASTM D6938 and ASTM D698.
 7. Compact each lift to a minimum of 95% maximum dry density in accordance with ASTM D6938 and ASTM D698.
 8. When tying into existing surface or slopes, each lift shall be tied into the side(s) of the adjacent existing surface by cutting compaction equipment into the surface a sufficient distance to thoroughly mix and blend the new material with the existing embankment except in case of the drain backfill materials.
 9. The surface of completed course shall be scarified at least 6 inches prior to placing succeeding lifts.
- B. Embankment fill placed as structure or pipe backfill:
1. Concrete structures shall not be backfilled until they have achieved 80% of the design strength as specified in SECTION 03 30 00.

2. Fill within 2 feet of structures shall be placed using 9-inch thick loose lifts or less.
3. Fill within pipe backfill zone shall be placed using 6-inch thick loose lifts of less with no rocks greater than 1 inch diameter per DRAWINGS.
4. Fill within pipe haunches shall be hand placed and hand tamped to ensure complete contact with between native backfill material and pipe.
5. Each lift within 2 feet of structures or within pipe backfill zone shall be compacted with hand-operated or a walk behind vibrator plate compactor to achieve 95% maximum dry density according to ASTM D6938 and ASTM D698.

3.3 FILTER SAND

- A. Filter sand shall be placed in 9-inch loose lifts or less.
- B. Filter sand surface shall be maintained at least 9 inches above adjacent backfill at all times to avoid mixing of materials.
- C. Prior to compaction, filter sand shall be thoroughly wetted to a saturated condition.
- D. Compact filter material lifts with 3 passes of a hand-operated or a walk behind vibrator plate compactor.

3.4 FILTER GRAVEL

- A. Filter gravel shall be placed in 9-inch loose lifts or less.
- B. Shall be placed using methods that will avoid contamination with adjacent materials.

3.5 QUALITY ASSURANCE

- A. OWNER will perform field quality assurance tests of compacted fill as well as laboratory proctor tests, gradation analysis, and Atterberg limits tests of stockpiled materials.
- B. OWNER will perform water content and compaction density testing during fill placement. The initial testing frequency shall be a minimum of one (1) test per lift. Testing frequency may be relaxed after 5 consecutive passing tests at the discretion of the ENGINEER.
- C. CONTRACTOR shall coordinate with the OWNER to perform water content testing and field density testing. CONTRACTOR shall provide ENGINEER and OWNER a minimum of 24 hours' notice prior to needing any testing.
- D. Materials not meeting the required specifications shall be reworked at the CONTRACTORS sole expense until the specifications are met.
- E. CONTRACTOR shall pay for retesting due to failed tests.

END OF SECTION

SECTION 31 37 00

RIPRAP AND RIPRAP BEDDING

PART 1 GENERAL

1.1 WORK INCLUDES

- A. Riprap placement and material
- B. Riprap bedding placement and material

1.2 RELATED SECTIONS

- A. SECTION 31 23 16 – EXCAVATION
- B. SECTION 31 23 19 – DEWATERING
- C. SECTION 31 23 23 – FILL AND BACKFILL

1.3 SUBMITTALS

- A. Gradation of proposed materials shall be submitted to ENGINEER for review and approval prior to importing materials to the site.

PART 2 PRODUCTS

2.1 RIPRAP BEDDING

- A. Bed course material for slope protection, or riprap filter blanket, shall conform to AASHTO or ASTM specification for No. 57 or 67 aggregate.

US Standard Sieve Size	Percent Passing	
	No. 57	No.67
1.5"	100	
1"	95-100	100
3/4"		90-100
1/2"	25-60	-
3/8"		20-55
No. 4	0-10	0-10
No. 8	0-5	0-5

2.2 RIPRAP

A. Imported riprap gradation shall conform to the table below:

Riprap Designation	% Smaller Than Given Size By Weight	Intermediate Rock Dimension (inches)	d ₅₀ * (inches)
Type VL	70 - 100	12	6**
	50 - 70	9	
	35 - 50	6	
	2 - 10	2	
Type L	70 - 100	15	9**
	50 - 70	12	
	35 - 50	9	
	2 - 10	3	
Type M	70 - 100	21	12**
	50 - 70	18	
	35 - 50	12	
	2 - 10	4	
Type H	70 - 100	30	18
	50 - 70	24	
	35 - 50	18	
	2 - 10	6	
Type VH	70 - 100	41	24
	50 - 70	33	
	35 - 50	24	
	2 - 10	9	

B. Specific gravity of riprap shall be 2.5 or greater when tested in accordance with AASHTO T85.

C. Percentage loss of riprap shall not exceed 50% when tested in accordance with AASHTO T96.

PART 3 EXECUTION

3.1 GENERAL

A. Stockpile rocks encountered during excavation that are suitable for use as riprap until the material is needed.

B. No riprap bedding or riprap shall be placed until the subgrade has been prepared, dewatered, and properly compacted, or otherwise prepared in accordance with the provisions of the SPECIFICATIONS and as specified on the DRAWINGS.

C. Subgrade Materials:

1. The subgrade materials shall be stable with little or no fines and no rocks greater than 6 inches in diameter.
2. If unsuitable materials are encountered, they shall be removed and replaced with

Native Fill as specified in SECTION 31 23 23 Fill and Backfill.

3.2 PLACEMENT OF RIPRAP BEDDING

- A. Riprap bedding shall be placed uniformly to the grades and thickness as shown in the DRAWINGS. Care shall be taken to keep the bedding thickness uniform. Excessive rutting of the finished bedding surface shall be avoided.
- B. Contamination:
 - 1. In-place bedding materials shall not be contaminated with soils, debris or vegetation before the riprap is placed.
 - 2. If contaminated, the bedding material shall be removed and replaced at CONTRACTOR's expense.

3.3 PLACEMENT OF RIPRAP

- A. Riprap shall be placed in such a manner so as not to cause a segregation of particle sizes. Placing in layers or by dumping into chutes or similar methods that may cause segregation are prohibited.
- B. Whenever practicable, riprap shall be placed in a bottom-up fashion to better mitigate disturbance to the underlying bedding layer.
- C. The riprap shall be placed, in one preparation, to the line, grade, and thickness as shown in the in the DRAWINGS, without undue displacement of the granular filter bedding underneath.

END OF SECTION

SITE RECLAMATION

GENERAL

1.1 SUMMARY

- A. All areas disturbed by the CONTRACTOR's operation such as, but not necessarily limited to, earthwork, construction or construction traffic, temporary bypass channels, or the storage of equipment or materials, shall be restored to existing condition or as specified.
- B. Top 6 inches of soil removed following clearing and grubbing shall be stockpiled and reused to facilitate suitable revegetation (referred to as topsoil herein).
- C. CONTRACTOR is responsible for procuring any required permits through all pertinent entities.

1.2 DEFINITIONS

- A. Warranty Period: A period of 1 year after all planting under this section is completed.
- B. Satisfactory Stand: A minimum 70% aerial plant coverage. Aerial plant cover shall be measured using the point Intercept Method Procedure.
- C. Replacement Area:
 - 1. Areas disturbed by activities of the CONTRACTOR

1.3 SUBMITTALS

- A. Quality Control Submittals
 - 1. Seed Mix:
 - a. Certification of seed analysis, germination rate, and inoculation
 - b. Mixtures: Percentages of each kind of seed.
 - c. Proposed Application rate
 - d. Certified seed tags shall be submitted to the ENGINEER a minimum of 10 days prior to seeding operations.
 - 2. Mulch
 - a. Proposed mulch material to be used on flatter slopes
 - 3. Erosion Control Blankets for slopes steeper than 3H:1V
 - a. Manufacturers cut sheets for proposed products including installation recommendations.

1.4 DELIVERY, STORAGE, AND PROTECTION

- A. Seed
 - 1. Furnish in standard containers with seed name, lot number, net weight, percentages of purity, germination, and hard seed and maximum weed seed content, clearly marked for each container of seed.
 - 2. Keep dry during storage.

1.5 WEATHER RESTRICTIONS

- A. Perform work under favorable weather and soil moisture conditions as determined by acceptable local practice.

1. Soil shall not be frozen or wet
- 1.6 SEQUENCING AND SCHEDULING
- A. Complete Work under this section within 10 days following completion of soil preparation.
 - B. Notify ENGINEER at least 3 days in advance of:
 1. Each material delivery.
 2. Start of seeding activity.
 - C. Installation seasons
 1. Native Seed: Between October 1 and April 30
- 1.7 MAINTENANCE SERVICE
- A. Seed
 1. CONTRACTOR: Perform maintenance operations during warranty period to include:
 - a. Washouts: Repair by filling with amended topsoil, fertilizing, seeding, and mulching as required during one-year warranty period.
 - b. Mulch: Replace as required until satisfactory stand of grass is established.
 2. Reseed unsatisfactory areas or portions thereof identified by the ENGINEER during the next installation season following the initial seeding operation.

PRODUCTS

- 1.1 NATIVE SEED MIX
- A. Areas disturbed by the earthwork shall be permanently revegetated with native grasses, unless otherwise directed by ENGINEER.
 - B. Native seed mix for this project shall contain seed native grasses and be suitable for the project elevation of 9,900 feet and an annual precipitation of 18-25 inches.
 1. Approved Mix – High Elevation Native Mix, produced by Southwest Seed Inc. Dolores, CO or Engineer Approved Equal
 - C. Keep dry during storage.
 - D. Grass seed shall be of the latest crop available. Seed shall meet Colorado Department of Agriculture Seed Laws, Chapter 35, Article 27.
 - E. The seeding mixture shall be applied at a pure live seed (PLS) rate per acre per suppliers recommendations.
 - F. Compensate for percentage of purity and germination by furnishing sufficient additional seed to equal the specified pure live seed product. The formula for determining the quantity of pure live seed (PLS) shall be:

$$\frac{\text{Purity (\%)} \times \text{Germination (\%)}}{100} = \% \text{ PLS}$$

$$\frac{100}{\% \text{ PLS}} = \text{Total pounds of seed needed per pound of Native Seed Mix specified in order to achieve necessary PLS}$$

- G. Present to the ENGINEER a certificate of the PLS test of the grass seed which is intended for use. All grass seed furnished shall be delivered in sealed bags showing seed name, vendor's name, lot number, net weight, percentages of purity, germination, and hard seed and maximum weed seed content, clearly marked for each container of seed.

1.2 TOPSOIL

- A. Stockpile topsoil removed during grading
- B. Protect topsoil from erosion, and reapply when preparing seedbed
- C. Surface should be free of rills and gullies
- D. Topsoil shall be select earth material of loose friable loam reasonably free of admixtures of subsoil, refuse stumps, roots, rocks, brush, weeds or other material which can be detrimental to the proper development of ground cover.

EXECUTION

1.1 GENERAL

- A. The pattern for seeding and mulching shall be as detailed on the plans or as required by field conditions to provide a uniform stand of grass acceptable to the OWNER. In no case shall revegetation occur within 30 days of the application of a chemical weed control substance.

1.2 SOIL AND SUBGRADE PREPARATION

- A. This work shall consist of preparing the soil for seeding. Preparation of the soil shall include harrowing and scarifying to a depth of 6 inches by mechanical and hand methods in order to establish a uniform and acceptable seed bed surface. Areas that have been eroded or rutted to a degree will require the placement of topsoil, graded and compacted to a uniform and acceptable seed bed surface.
- B. Topsoil will be uniformly placed and spread on areas prior to seeding. The minimum thickness shall be to 6 inches above the surrounding finished grade. The topsoil shall be keyed to the underlying and surrounding material by the use of harrows, rollers or other equipment suitable for the purpose.
- C. Water shall be applied for compaction purposes to the topsoil in a fine spray by nozzles in such a manner that it will not wash or erode the newly placed soil.
- D. Care shall be exercised during the soil preparation on all embankments so as not to disturb established ground cover. Areas disturbed during the soil preparation will be seeded and mulched at the discretion of the ENGINEER in accordance with these documents.
- E. Limit preparation to areas which will receive placements within 2 days after subgrade preparation.
- F. No special payment for soil preparation or corrective work will be made.

1.3 SEEDING

A. General

- 1. All seeding shall be drilled wherever possible. Seeding shall not be undertaken in adverse weather and unsuitable ground conditions. Examples of these respective conditions may be wind, precipitation, frozen or untillable ground or conditions detrimental to the effectiveness of the application.

2. Certified seed tags shall be submitted to the ENGINEER a minimum of 10 days prior to seeding operations.
3. All native grasses shall be planted with a minimum of 6 inches of topsoil, followed by mulch.
4. Protect seeded areas from construction equipment and vehicle access.

B. Drilling

1. Seeding application: Drill seed $\frac{1}{4}$ " to $\frac{1}{2}$ " into topsoil.

C. Hand Seeding (as approved by the ENGINEER for areas inaccessible for drilling)

1. In certain areas where access is limited, seeding may be accomplished by hand broadcasting seed over the area. Special care shall be taken to assure the proper seeding rate is used on these areas. After broadcasting of the seed has been accomplished, the seed shall be raked into the soil to a depth of $\frac{1}{4}$ " to $\frac{3}{4}$ " to and rolled.
2. Application rate shall be doubled for Hand Seeding areas.

1.4 GUARANTEE

- A. All plant material and work accomplished under this Section shall be guaranteed to provide a stand of grass acceptable to the OWNER at the end of warranty period.
- B. Upon written notice from the CONTRACTOR, ENGINEER will, within 15 days of receipt, determine if a satisfactory stand of grass has been established.

C. Re-Seeding

1. Areas that require re-seeding and re-mulching will be designated by the ENGINEER at least 15 days prior to the end of the guarantee period. Re-seeding and re-mulching shall be with the seed and rates specified herein before for seeding and shall be accomplished in a manner that will cause a minimum of disturbance to the existing stand of grass.

D. Areas to be Seeded

1. All areas that have been damaged or disturbed by the CONTRACTOR's operation shall be reseeded according to these Specifications and as indicated on Drawings, and per ENGINEER direction.

1.5 MAINTENANCE

A. Reseeding

1. Reseed as needed until a successful stand of grass is established under the warranty obligations, to extend for one-year post-commissioning.

END OF SECTION

SECTION 33 05 13

PRECAST STRUCTURES

PART 1 GENERAL

1.1 DESCRIPTION

- A. This Section describes the work, materials, and equipment needed to construct concrete structures and appurtenances.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Drawing showing dimensions, location identification, lifting inserts, reinforcement, pipe inserts, and joints.
- B. Quality Control Submittals:
 - 1. Precast Manufacturer's quality control procedures established in accordance with NPCA Quality Control Manual for Precast Concrete Plants or verification of current NPCA Plant Certification.
 - 2. Results of quality control tests performed in accordance with SPECIFICATION 03 30 00 CONCRETE SECTION 3.9 FIELD QUALITY CONTROL.

1.3 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - 1. C 913 - Standard Specification for Precast Concrete Water and Wastewater Structures
- B. National Precast Concrete Association
 - 1. NPCA Quality Control Manual for Precast Concrete Plants

1.4 RELATED SECTIONS

- A. SECTION 31 23 16 - EXCAVATION
- B. SECTION 31 23 34 - TRENCH AND STRUCTURE BACKFILL

PART 2 PRODUCTS

2.1 STRUCTURES

- A. Precast structures shall be manufactured in conformance with NPCA Quality Control Manual for Precast Concrete Plants unless specified otherwise.
- B. Concrete mix design shall meet or exceed the requirements of SECTION 03 30 00.

PART 3 EXECUTION

3.1 STRUCTURE INSTALLATION

- A. Transport, handle, and store precast concrete in accordance with the manufacturer's requirements and recommendations in a manner to minimize damage. Use lifting devices where provided in the precast sections. Follow the manufacturer's recommendations for lifting procedures when lifting devices are not provided.
- B. Flared End Section shall be inserted over PVC pipe. As depicted on the plans an internal pipe seal shall be installed between the pipe and flared end section.
- C. Excavation and Backfill precast structures shall conform to SECTIONS 31 23 16 and 31 23 34.
- D. Assemble and place buried precast concrete structures in properly excavated and compacted soil foundations. Protect all work against flooding and flotation. Set precast concrete structures to grade and oriented to provide the required dimensions and clearances from pipes and other structures.

- E. The invert shall provide a smooth transition between channels. No sharp edges or rough sections which will tend to obstruct the flow will be permitted.

END OF SECTION

SECTION 33 11 00

PIPING - GENERAL

PART 1 GENERAL

1.1 SUMMARY

- A. General
 - 1. This Section includes general requirements for piping and shall supplement the material specification for the type of pipe specified.
 - 2. In case of any conflict between AWWA, ASTM, AASHTO, ANSI, PPI, Uni-Bell, or NRCS Standards or other references and the Specifications and drawings, the Specifications and drawings shall govern.
- B. Provide, install, and test pipe and fittings, complete as shown on the Drawings and as specified herein.
- C. Related Sections:
 - 1. SECTION 31 23 16 – EXCAVATION
 - 2. SECTION 31 23 33 – FILL AND BACKFILL

1.2 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. AWWA M55 Manual of Water Supply Practices, PE Pipe–Design and Installation
- B. Plastics Pipe Institute, PPI
 - 1. PPI Handbook of Polyethylene Pipe – 2009 (2nd Edition)
 - 2. PPI TN-42 Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators for Municipal and Industrial Projects (2009)
- C. American Society for Testing and Materials (ASTM):
 - 1. ASTM D2241 – Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
 - 2. ASTM D2467 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
 - 3. ASTM D1784 – Standard Specification for Rigid PVC Compounds and Chlorinated PVC Compounds
 - 4. ASTM D1785 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40,80, and 120

1.3 DEFINITIONS

- A. Deflection: Decrease in the vertical diameter of a pipe as a result of backfill and loading. Deflection is measured as the change in vertical diameter divided by the nominal pipe diameter, expressed as a percentage.
- B. Initial Deflection: Deflection occurring on the day the backfilling over the pipe, as shown in the Construction Drawings, is complete
- C. Joint Deflection: Deflection occurring at pipe joints in order to obtain horizontal alignment curvature or vertical profile curvature, expressed in degrees.

1.4 PIPE DESIGN CRITERIA

- A. General:
 - 1. Drawings: Shall mean the Contract Drawings issued for the Project.
 - 2. The pipe, fittings, and specials shall be designed and manufactured to meet the strength requirements given and to conform when laid with line and grades including outlets, connections, test bulkheads, and appurtenances as shown on the Drawings.
 - 3. The pipe shall be furnished to the sizes, dimensions, and pressure classification required and shall be installed in such places as shown on the Drawings or as designated by the ENGINEER, in accordance with these specifications and in conformity with the lines and grades given.

1.5 SUBMITTALS

- A. Certified Manufacturer Technical Specification Sheets of Pipe Materials:
 - 1. Furnish certified technical specifications sheets from manufacturer of any proposed piping

materials

B. Certified Drawings of Appurtenances:

1. Furnish certified dimensional Drawings of all valves, fittings, and appurtenances.

1.6 QUALITY CONTROL SUBMITTALS

- A. Repair methods for sections of pipe that fail testing.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Pipe sections and fittings shall be transported and handled with care in accordance with the manufacturer's recommendations.
- B. Support stockpiled pipe on sand or earth berms free of rock exceeding 3 inches in diameter. Secure pipe to prevent rolling.
- C. Handle the plastic pipe in accordance with the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 2 using approved strapping and equipment rated for the loads encountered. Do not use chains, wire rope, forklifts or other methods or equipment that may gouge or damage the pipe or endanger persons or property. Field storage is to be in compliance with AWWA Manual of Practice M55 Chapter 7.
- D. If any gouges, scrapes, or other damage to the plastic pipe results in loss of 10% of the pipe wall thickness, cut out that section or do not use.
- E. Check deflection of pipe and relocate struts, if any, or provide additional struts to keep the deflections within that specified in this Section and to maintain the pipe in a round condition.
- F. All joint gaskets shall be stored in a cool location out of direct sunlight

PART 2 PRODUCTS

2.1 PIPING

- A. Pressure-Rated Solvent Weld SDR Series Polyvinyl Chloride (PVC) Pipe
1. Pipe shall be furnished to the diameters, sizes, and dimensions shown in the Drawings.
 2. Pipe shall meet or exceed the SDR rating specified on the drawings
 3. Pipe shall conform to ASTM D2241.
 4. PVC compounds shall meet or exceed requirements of ASTM D1784 Cell Class 12454
 5. Pipe end finishes shall consist of one integral solvent weld compatible bell end and one plain end. If supplied pipe includes gasketed bell fittings the bells shall be removed and pipe shall be joined with solvent weld couplers.

2.2 FITTINGS AND SPECIALS

- A. Pressure-Rated Solvent Weld SDR Series Polyvinyl Chloride (PVC) Fittings
1. Fitting shall meet or exceed the SDR rating of the pipe for which it is used.
 2. PVC compounds shall meet or exceed requirements of ASTM D1784 Cell Class 12454
 3. Fitting end finishes shall consist of integral solvent weld compatible bell ends.
 4. Long radius elbow fittings shall be used for all elbow fittings shown in the Drawings.

2.3 ANCILLARY MATERIALS

- A. Solvent Weld Cement: As supplied by pipe manufacturer; no substitute or "or-equal" will be allowed.

2.4 PIPE AND FITTING IDENTIFICATION

- A. General
1. Pipe and fittings shall be marked in accordance with manufacturer's process and method.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General
1. Join pipe and fittings in accordance with manufacturer's instructions, unless otherwise shown or specified.
 2. Inspect pipe and fittings before installation, clean ends and remove foreign matter and dirt from inside with special attention to the joint area.
 3. Keep trench dry until pipe laying and joining are completed.

4. Pipe Base and Pipe Embedment: As specified in Drawings.
 5. Close and block open end of last laid pipe section when placement operations are not in progress and at close of day's work.
 6. Prevent damage to pipe when lowering pipe into place.
 7. Prevent uplift and floating of pipe prior to backfilling.
 8. Contractor is responsible for ensuring that the outlet pipe is adequately anchored in order to prevent movement during compaction. ENGINEER shall be present for initial compaction.
 9. Raising or Lowering Pipe: Where necessary to raise or lower the pipe, the ENGINEER may change the alignment and/or the grades by the deflection of joints, by the use of bevel adapters or by the use of additional fittings. The deflection of the joint shall not exceed the maximum deflection recommended by the pipe manufacturer. No joint shall be deflected any amount which, in the opinion of the ENGINEER, will be detrimental to its strength and water tightness.
- B. Polyvinyl Chloride Pipe (PVC)
1. Install per manufacturer's recommendations.
 2. Tolerances:
 - a. Vertical tolerance shall be 0.05 feet of grades shown on the Construction Drawings
 - b. Horizontal tolerance shall be 0.50 feet of lines shown on the Construction Drawings
 - c. Initial Deflection shall not exceed 5 percent
 - d. Joint deflection shall not exceed 1 degree
 3. Solvent welded joints
 - a. Store solvent cement indoors.
 - b. Prior to solvent welding, remove fittings and couplings from their cartons and expose them to the air for at least one hour to the same temperature conditions as the pipe.
 - c. Wipe away loose dirt and moisture from the ID and OD of the pipe end and the ID of the fitting before applying solvent cement. Do not apply solvent cement to wet surfaces.
 - d. Make up solvent welded joints per ASTM D 2855.
 - e. Allow at least 8 hours of drying time before moving solvent welded joints or subjecting the joints to any internal or external loads or pressures.

3.2 PIPE INSPECTION

- A. Video Inspection
1. CONTRACTOR shall perform a video inspection of all piping after 3 to 5 feet of fill has been placed on the pipe and again after backfill is complete.
 2. The video survey shall use a high-resolution color camera that displays lineal footage inspected on the video.
 3. All video inspection of piping shall be performed in the presence of the ENGINEER. The Contractor shall provide a minimum of 48-hours notice to the ENGINEER prior to performing pipe video inspections.
 4. CONTRACTOR shall be responsible for repairing any damaged portions of the piping system discovered during the video inspection.
 5. All videos shall be recorded and submitted to the OWNER,ENGINEER, and SEO.

3.3 CLEANING

- A. Clean in-place from inside by brushing and sweeping, then flush or blow line at low velocity.
- B. Remove accumulated debris through drains 2-inches and larger or by removing spools and valves from piping.

END OF SECTION

SECTION 35 20 16

CAST IRON SLIDE GATES

PART 1 GENERAL

1.01 SCOPE

- A. Provide cast iron slide gates as shown on the Drawings.

1.02 REFERENCES

- A. American Water Works Association
 - 1. C560-00: AWWA Standard for Cast-Iron Slide Gates

1.03 SUBMITTALS

- A. Manufacturer's catalog information, descriptive literature, Specifications, and identification of materials of construction.
- B. Shop drawings depicting gate, frame, stem, stem guide, oils seals, pedestal, operator, steel mounting plate and other associated items.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Frame - Minimum height, galvanized steel, flatback style for mounting to flat concrete/steel headwalls.
- B. Slide - Gate leaf shall be painted cast iron.
- C. Seating Face - Bronze
- D. Wedges - Painted cast iron
- E. Stems - Stainless steel.
- F. Oil filled stem guide – Galvanized Steel
- G. Steel Mounting Plate – ASTM A 36 Steel Plate with 2-part epoxy coating
- H. Stop Nut for Stem - Bronze

2.02 GATE ACTUATOR

- A. Provide one manual fabricated actuator per gate.
- B. Actuators shall be painted with a rust resistant coating

2.03 APPROVED PRODUCTS/SUPPLIER:

- A. Fresno Valves and Castings, Inc - Series 6400 Model 20-10C Slide Gate
- B. Waterman Valve, LLC - C-20 Canal Gate
- C. Engineer approved equal gate and supplier.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with the manufacturer's written instructions.
- B. Fill oil stem before operating with a food grade oil.

3.02 FIELD QUALITY CONTROL

- A. Functional Tests: Operate each slide gate two complete open-close cycles.
- B. Wedges shall be adjusted according to manufacturer's written instructions.
- C. A bronze stop nut shall be installed on the stem and the set screw shall be tightened such that it prevents overtightening of the gate.

END OF SECTION

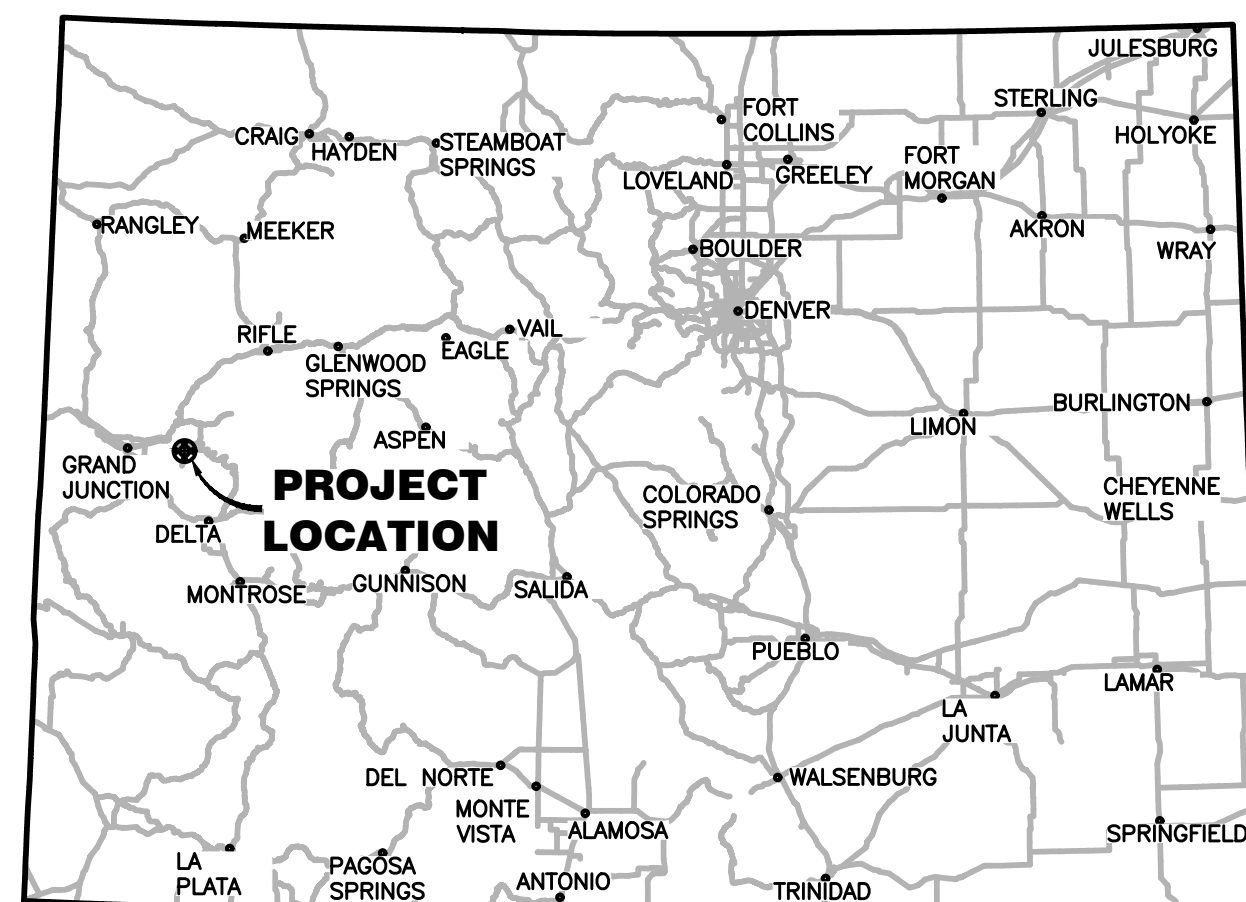
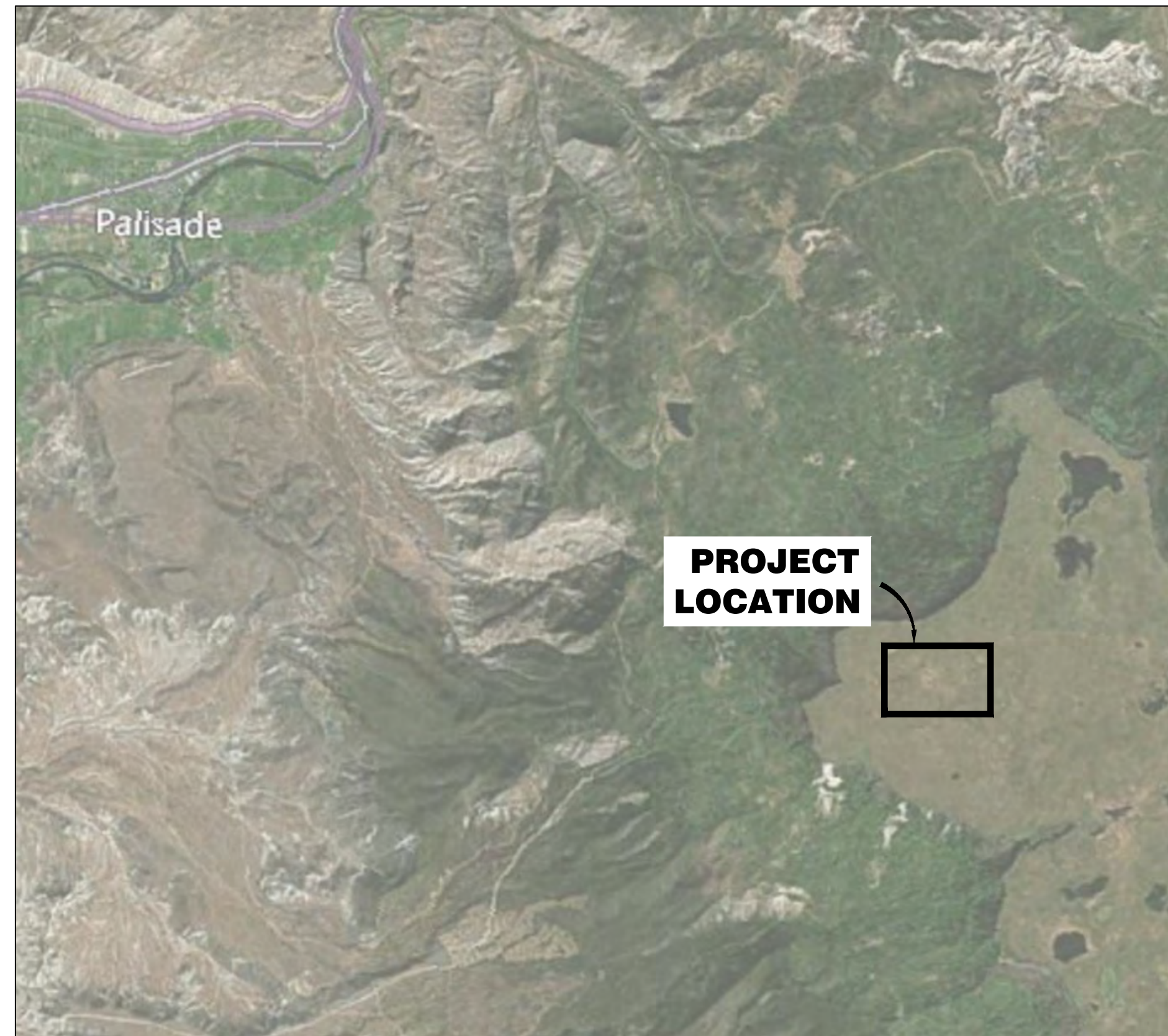
SNOWCAP COAL CO. VINCIENT NO. 2 RESERVOIR CONSTRUCTION PLANS

DAM ID: 720319, Water Division 5, District 72 MESA COUNTY JANUARY, 2022

OWNER: SNOWCAP COAL CO.
P.O. BOX 1430
PALISADE, CO 81526

ENGINEER: APPLGATE GROUP, INC.
1490 W. 121st AVENUE
SUITE 100
DENVER, CO 80234
(303) 452-6611

VICINITY MAP
SCALE 1" = 5000'



LOCATION MAP
NOT TO SCALE

These plans have been prepared by me or under my direct supervision.

Craig Ullmann
Craig Ullmann
Colorado P.E. No. 38551

38551
3/16/22
PROFESSIONAL ENGINEER

Approved on the 15th day of March, 2022

State Engineer Kevin Rein

STATE ENGINEER
OF COLORADO

By:
John Hunyadi, Chief, Colorado Dam Safety
Colorado P.E. 42709

These plans represent the AS-CONSTRUCTED conditions of _____ Dam to the best of my knowledge and judgment, based in part on information furnished by others, as of the _____ day of _____, 20__.

Craig Ullmann
Colorado P.E. No. 38551

Applegate Group, Inc.
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Denver, CO 80234
(303) 452-6611
Fax: (303) 452-2759
email: info@applegatengroup.com Website: www.applegatengroup.com

VINCIENT NO. 2 RESERVOIR RECONSTRUCTION
COVER SHEET

SNOWCAP COAL CO.

NO	DATE	BY	CHK'D	DESCRIPTION

Date: Jan2022
Job No: 21-115
Drawn: TH
Design: TD/CU
Checked: CU
Scale: AS SHOWN

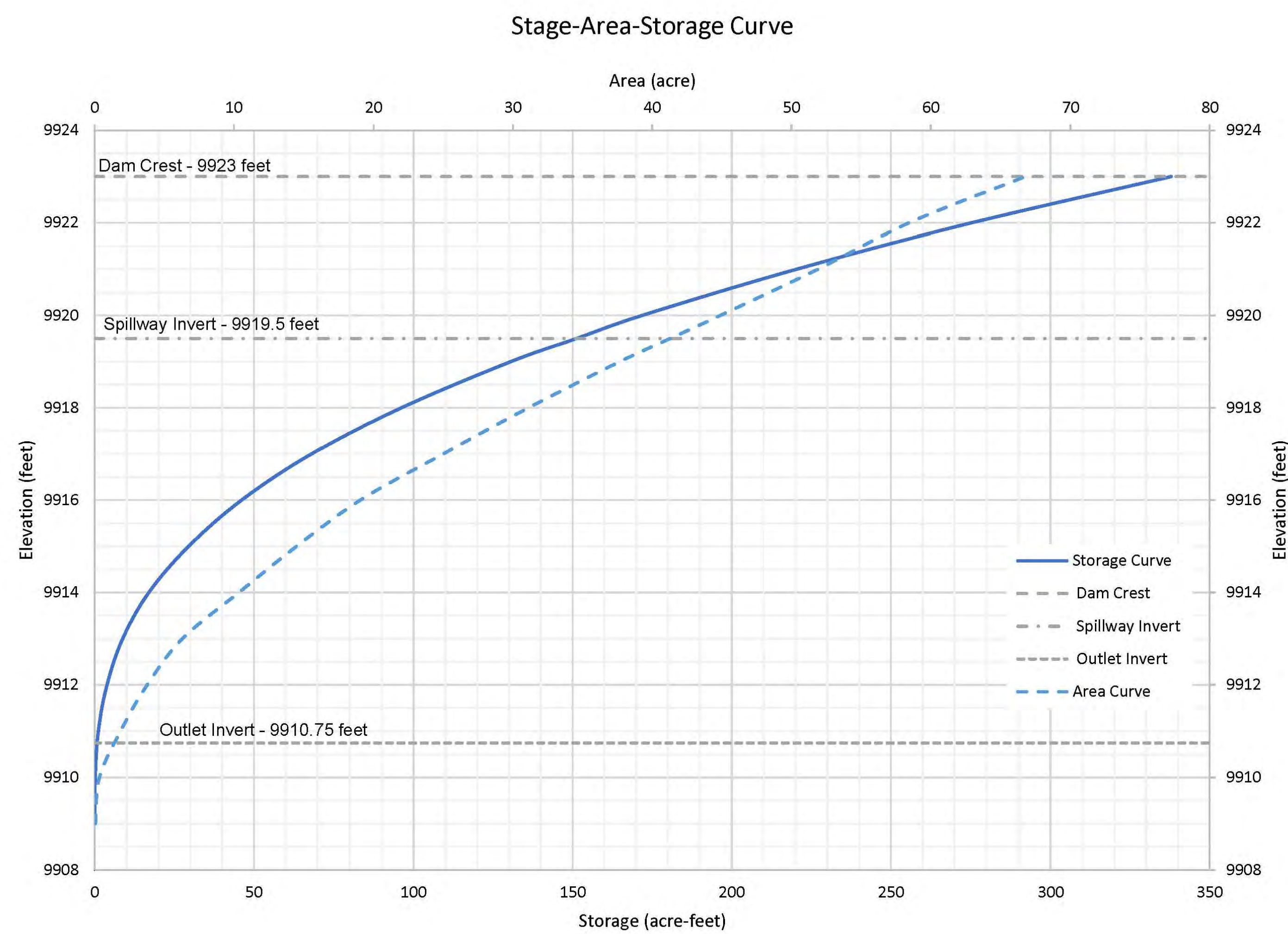
38551
3/16/22
PROFESSIONAL ENGINEER

Sheet: **1** OF **10**



BID SET

Filing No. C-2119



Elevation (ft)	Gage Reading (ft)	Area (acres)	Volume (ac-ft)	Spillway Discharge (cfs)	Outlet Discharge (cfs)	Description
9909	-	0.0	0.0			
9910	-	0.3	0.2			
9911	0	1.8	1.1		0.0	Outlet Gate Invert
9912	1	3.8	3.9		4.8	
9913	2	6.3	8.8		7.2	
9914	3	10.4	17.0		8.9	
9915	4	14.5	29.5		10.4	
9916	5	19.0	46.2		11.7	
9917	6	25.0	68.1		12.8	
9918	7	31.1	96.2		13.9	
9919	8	37.7	130.6		14.9	
9919.5	9	41.3	150.0	0.0	15.4	Normal High Water
9920	10	44.9	171.8	9.2	15.8	
9921	11	51.9	220.3	63.6	16.7	
9922	12	58.5	275.4	166.3	17.5	
9923	13	66.8	337.9	317.2	18.3	Dam Crest

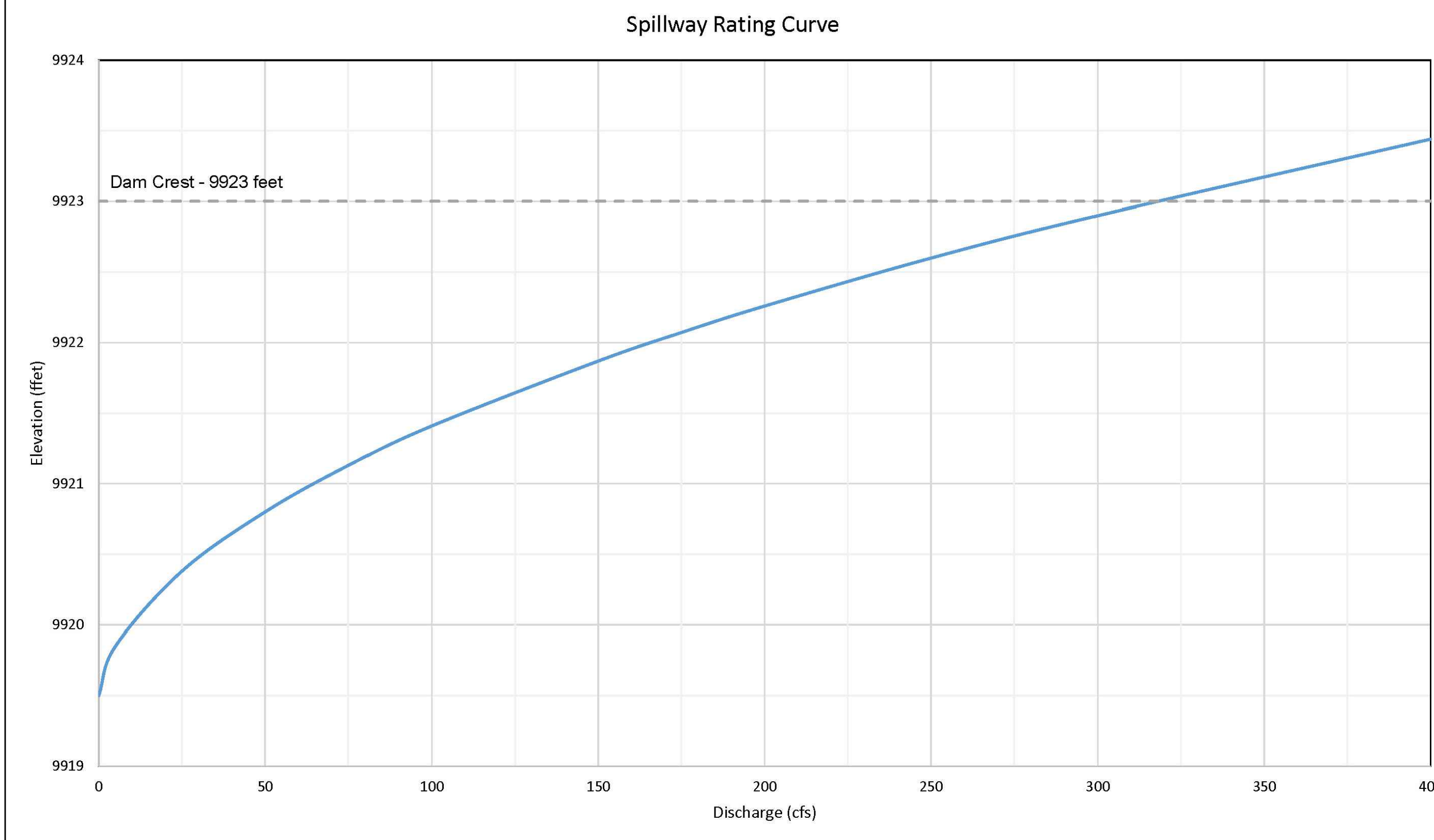
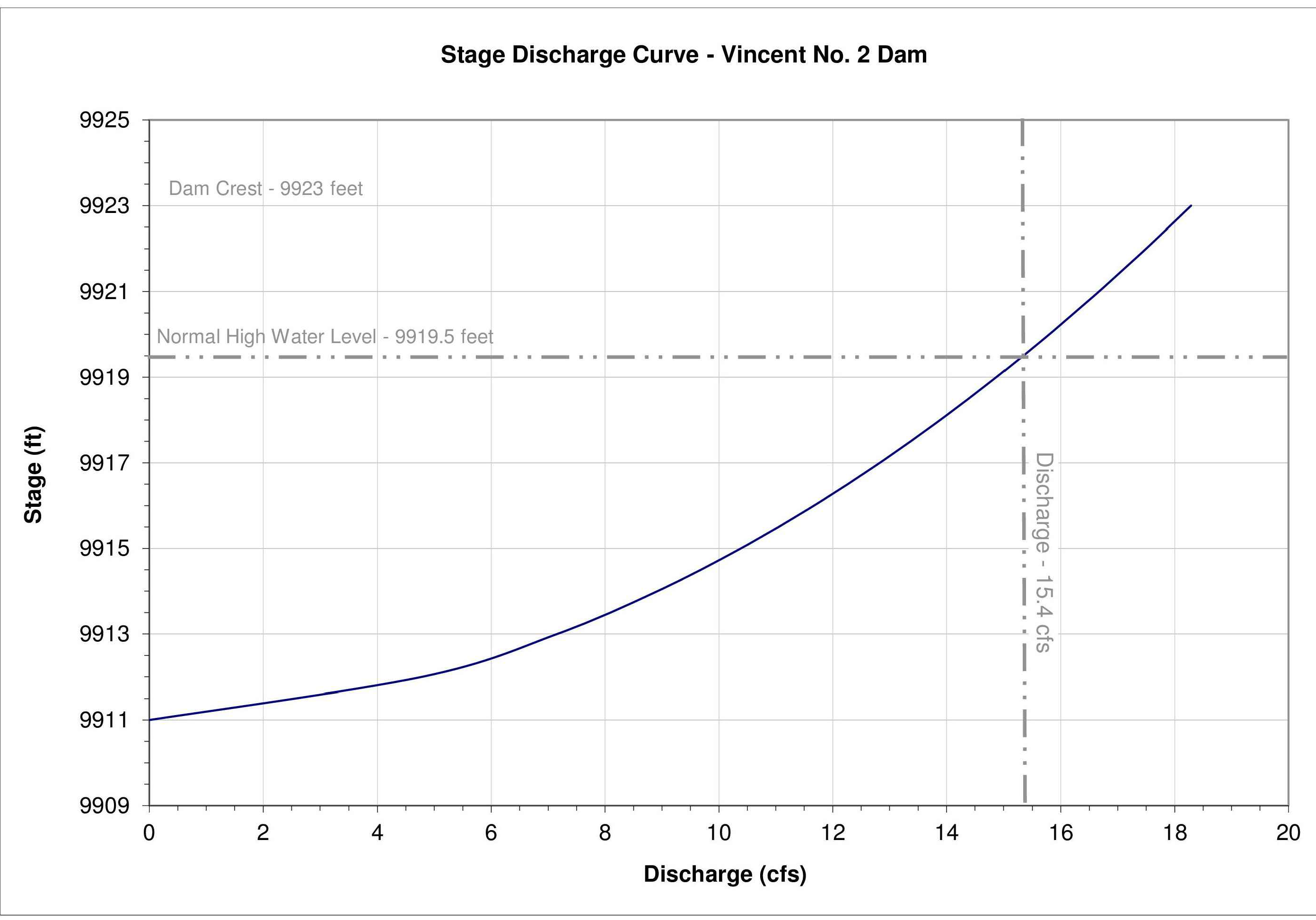
Sheet List Table

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES AND DOCUMENTATION
3	SURVEY CONTROL AND SITE ACCESS
4	SITEPLAN
5	DAM CENTERLINE PLAN AND PROFILE
6	CROSS-SECTIONS
7	DAM OUTLET PLAN AND PROFILE
8	SPILLWAY PLAN AND PROFILE
9	OUTLET DETAILS
10	OUTLET DETAILS

Applegate Group, Inc.
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 Denver, CO 80234
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 Fax: (303) 452-2759
 email: info@applegatengroup.com Website: www.applegatengroup.com

VINCENT NO. 2 RESERVOIR RECONSTRUCTION
GENERAL NOTES AND DOCUMENTATION

SNOWCAP COAL CO.



NO	DATE	BY	CHK'D	DESCRIPTION

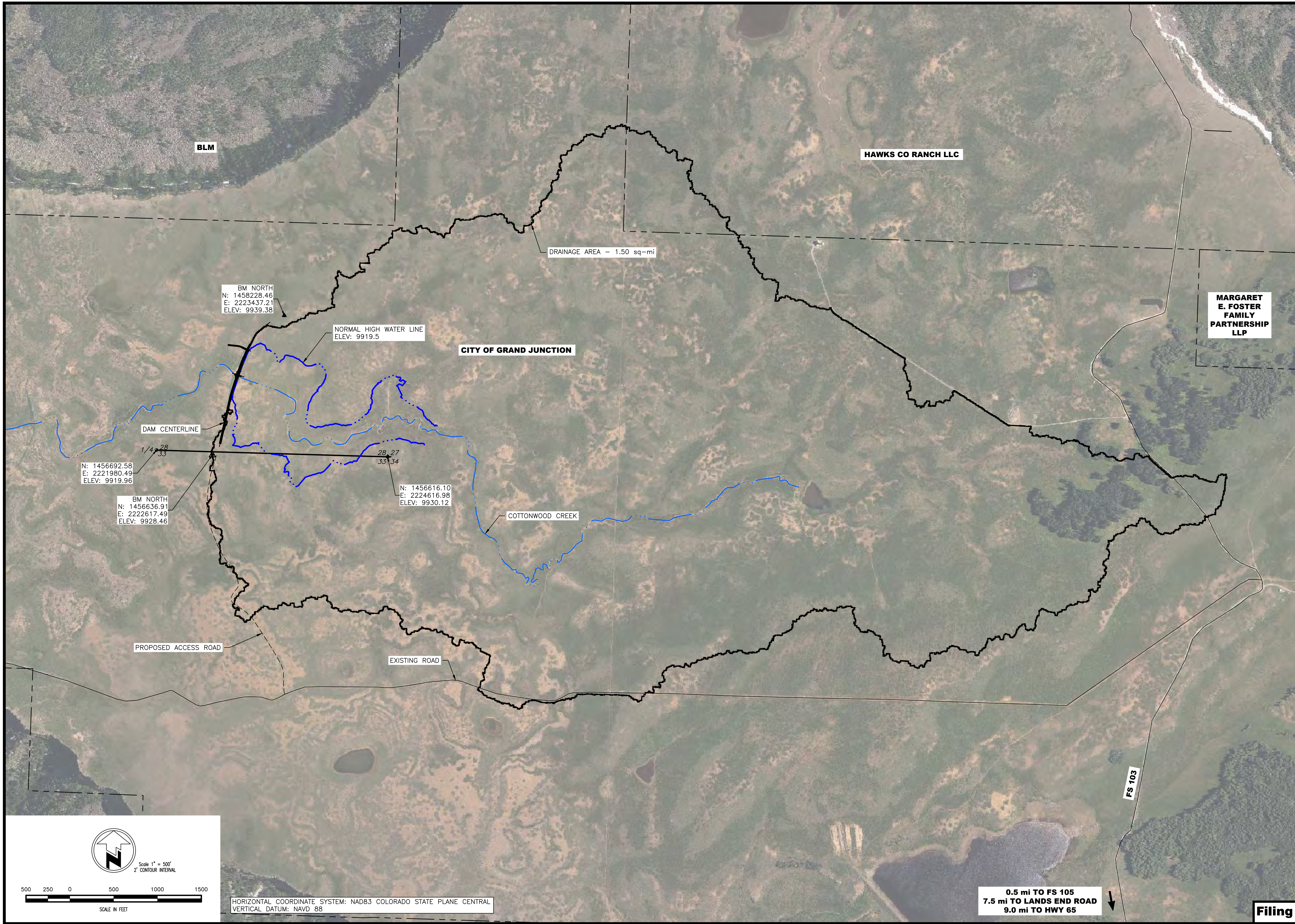
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 Checked: CU
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Sheet: **2** OF **10**

Filing No. **C-2119**

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VINCENT NO. 2 RESERVOIR RECONSTRUCTION
SURVEY CONTROL AND SITE ACCESS

SNOWCAP COAL CO.

REVISIONS			
NO	DATE	BY	DESCRIPTION

Date: Jan2022
 Job No: 21-115
 Drawn: TH
 Design: TD/CU
 Checked: CU
 Scale: AS SHOWN



Sheet: **3** OF **10**

Filing No. **C-2119**

0.5 mi TO FS 105
 7.5 mi TO LANDS END ROAD
 9.0 mi TO HWY 65

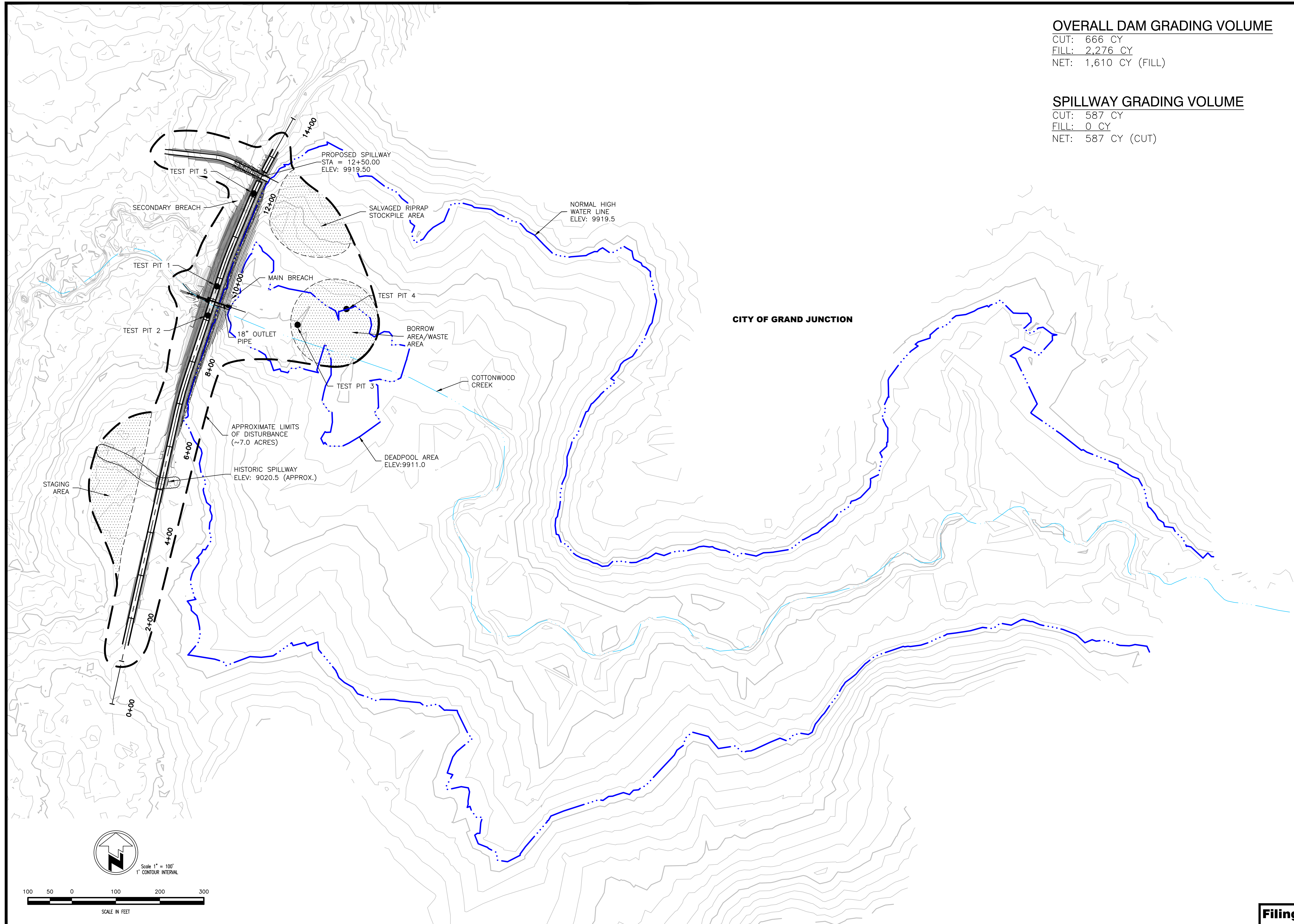
HORIZONTAL COORDINATE SYSTEM: NAD83 COLORADO STATE PLANE CENTRAL
 VERTICAL DATUM: NAVD 88

OVERALL DAM GRADING VOLUME

CUT: 666 CY
 FILL: 2,276 CY
 NET: 1,610 CY (FILL)

SPILLWAY GRADING VOLUME

CUT: 587 CY
 FILL: 0 CY
 NET: 587 CY (CUT)



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VINCIENT NO. 2 RESERVOIR RECONSTRUCTION
SITEPLAN

SNOWCAP COAL CO.

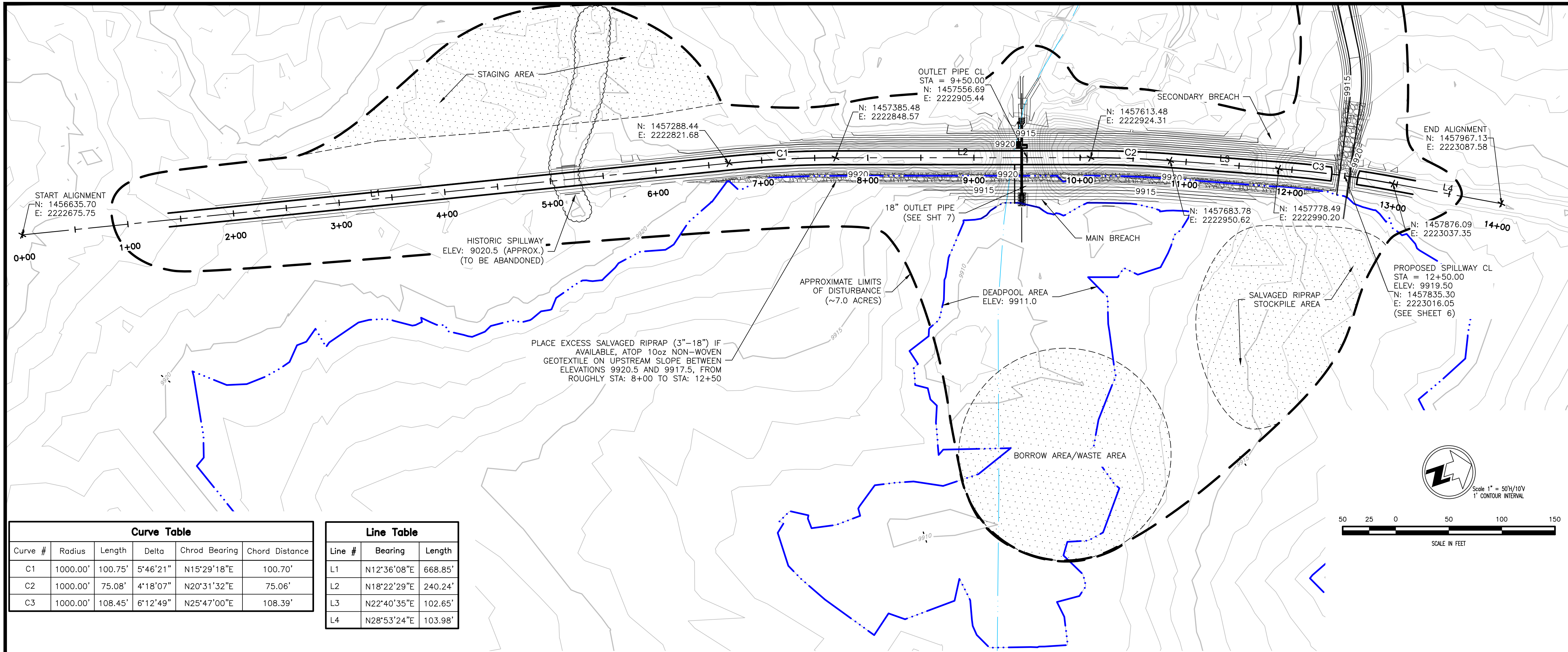
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Date: Jan2022
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Sheet: **4** OF **10**

Filing No. **C-2119**

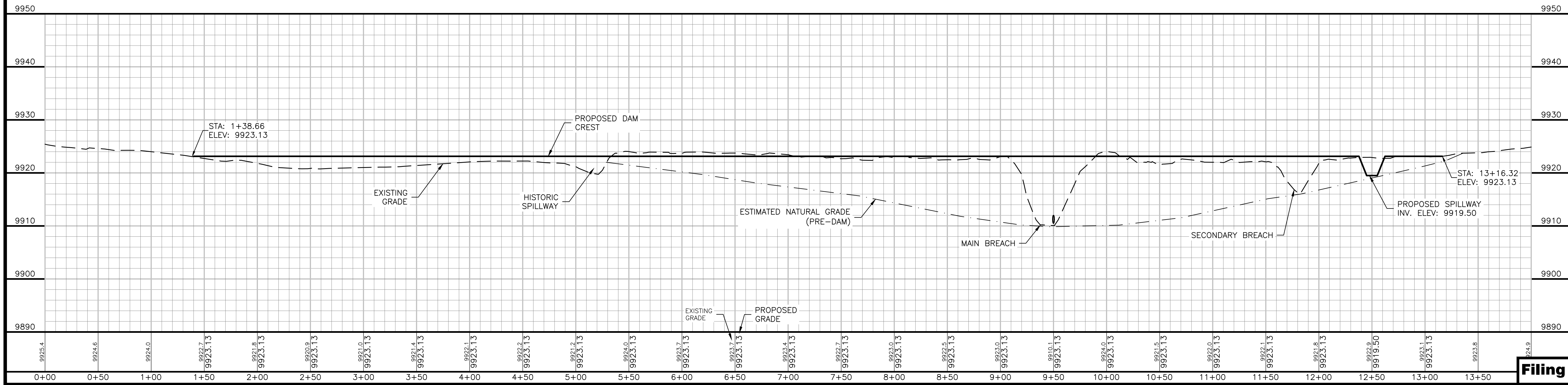


Curve Table

Curve #	Radius	Length	Delta	Chrod Bearing	Chrod Distance
C1	1000.00'	100.75'	5°46'21"	N15°29'18"E	100.70'
C2	1000.00'	75.08'	4°18'07"	N20°31'32"E	75.06'
C3	1000.00'	108.45'	6°12'49"	N25°47'00"E	108.39'

Line Table

Line #	Bearing	Length
L1	N12°36'08"E	668.85'
L2	N18°22'29"E	240.24'
L3	N22°40'35"E	102.65'
L4	N28°53'24"E	103.98'



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VINCENT NO. 2 RESERVOIR RECONSTRUCTION
DAM CENTERLINE PLAN AND PROFILE

SNOWCAP COAL CO.

NO	DATE	BY	CHK'D	DESCRIPTION

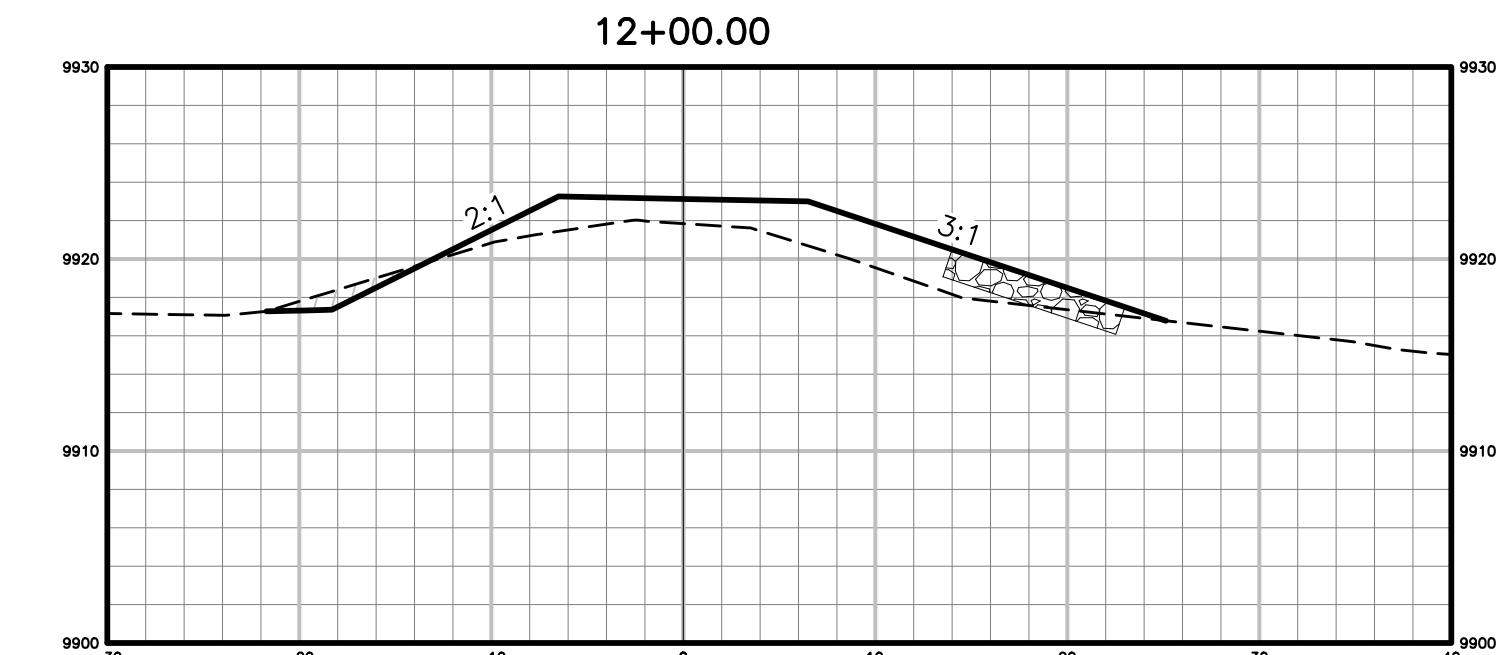
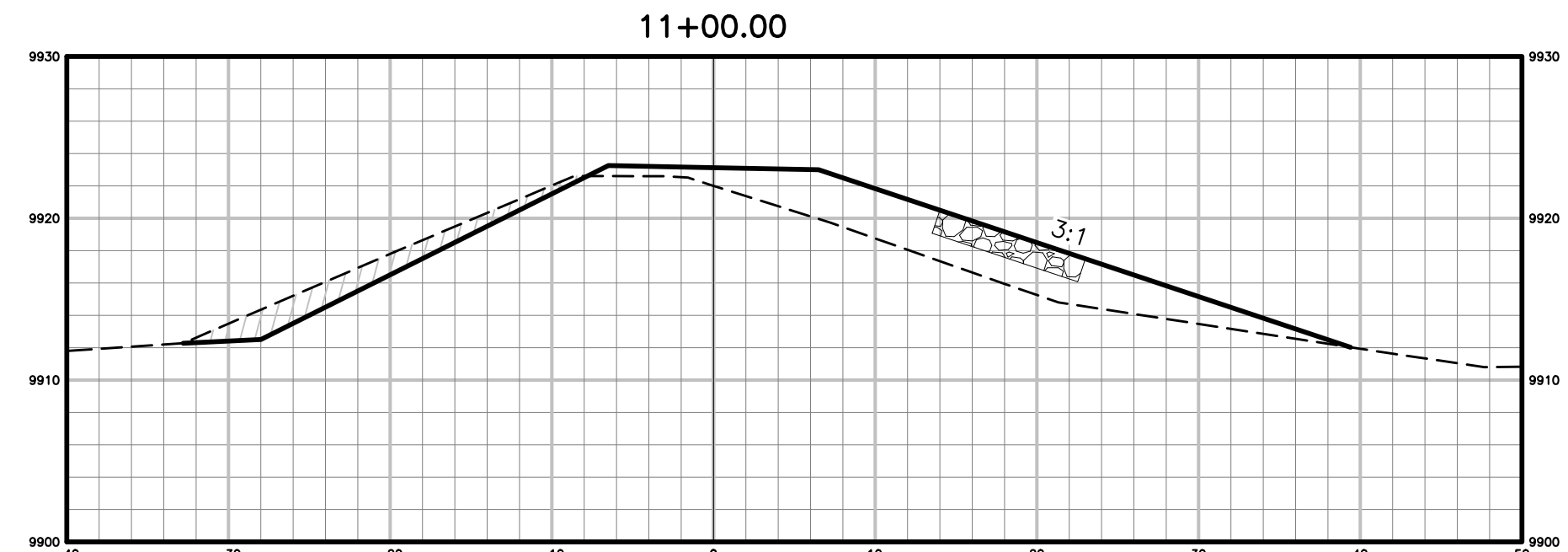
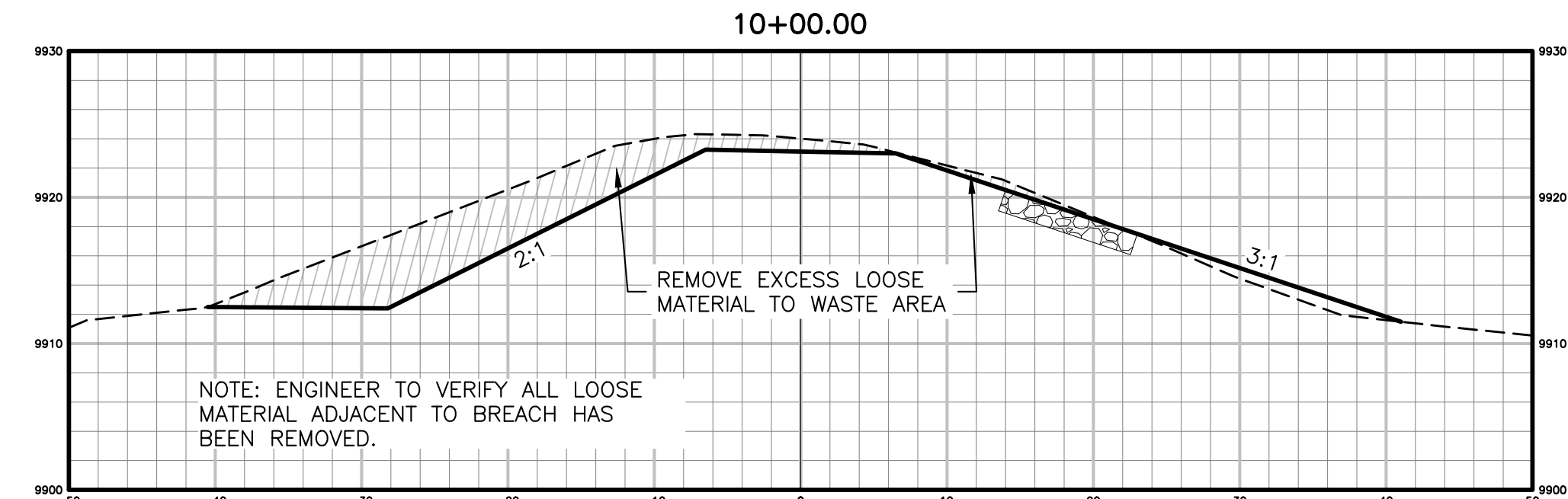
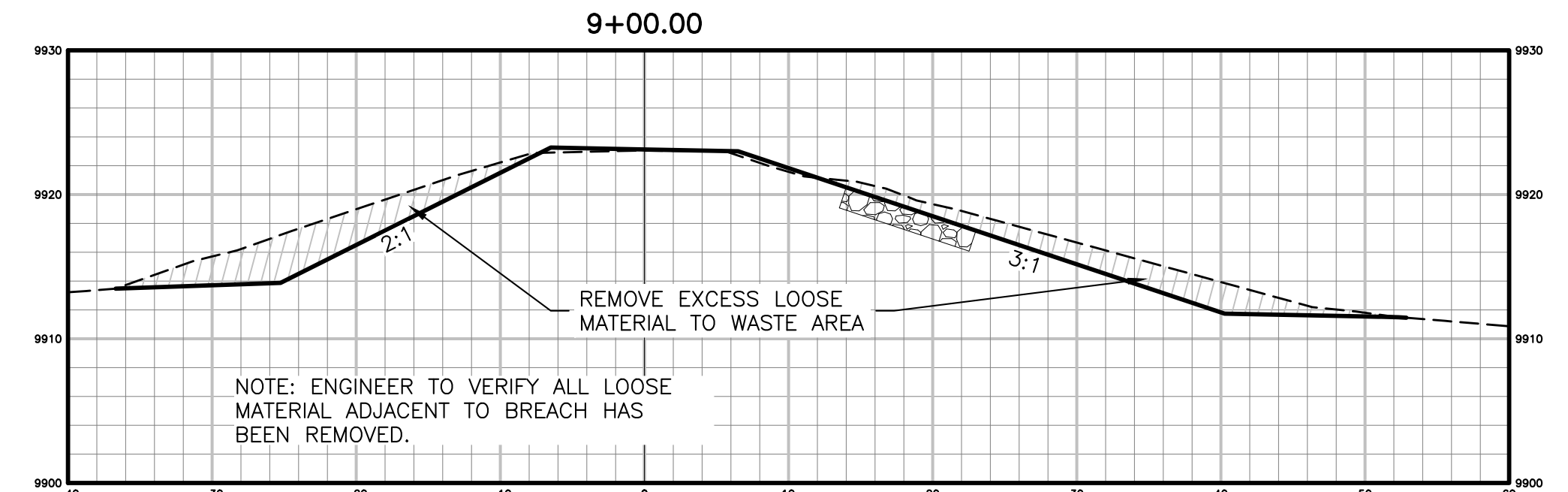
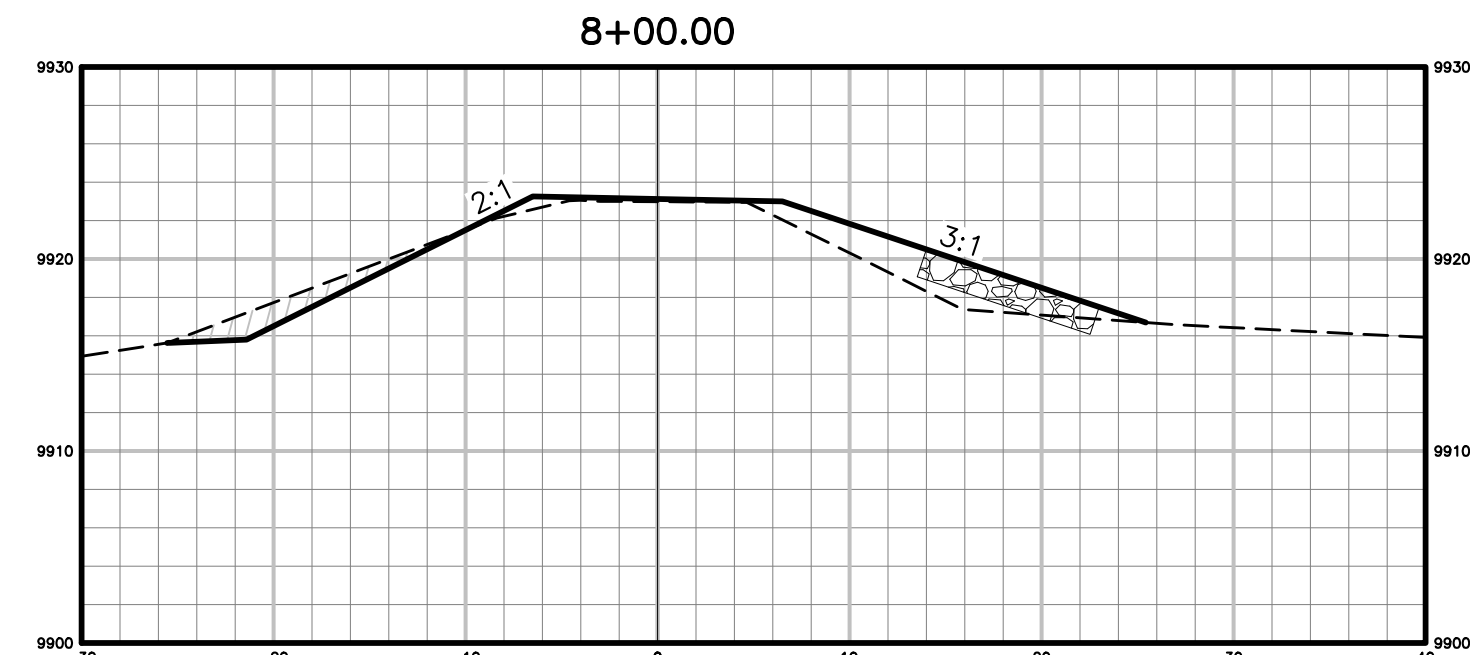
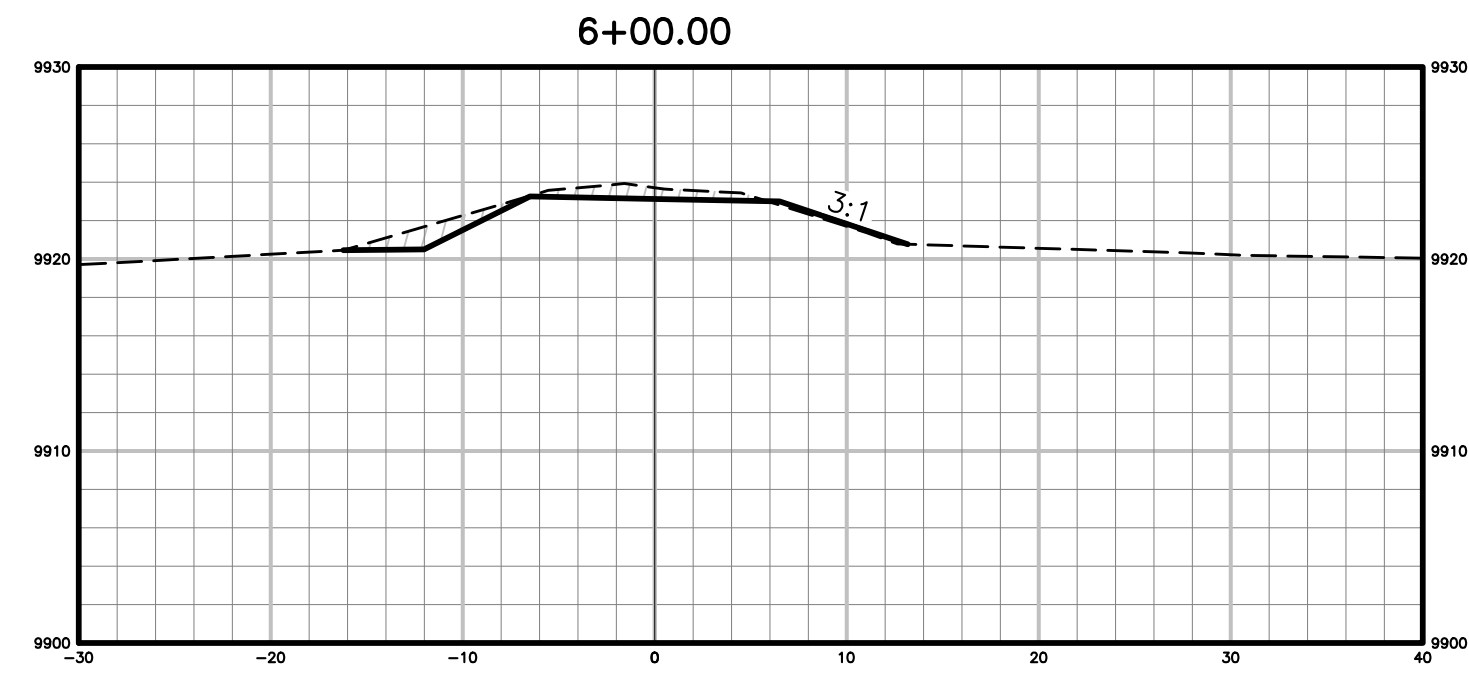
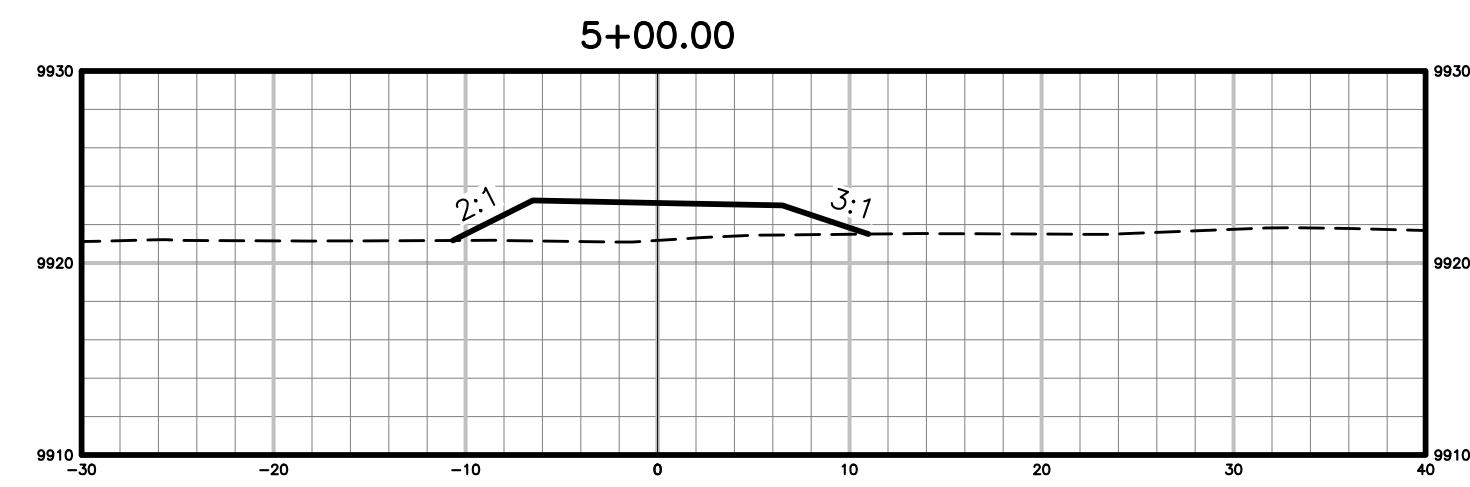
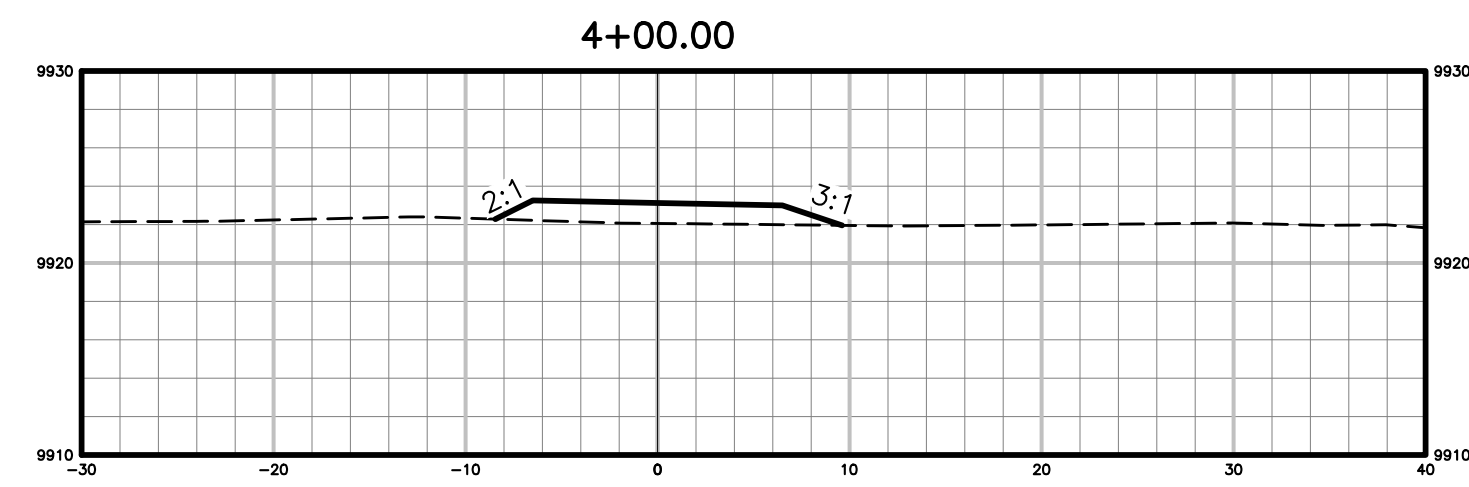
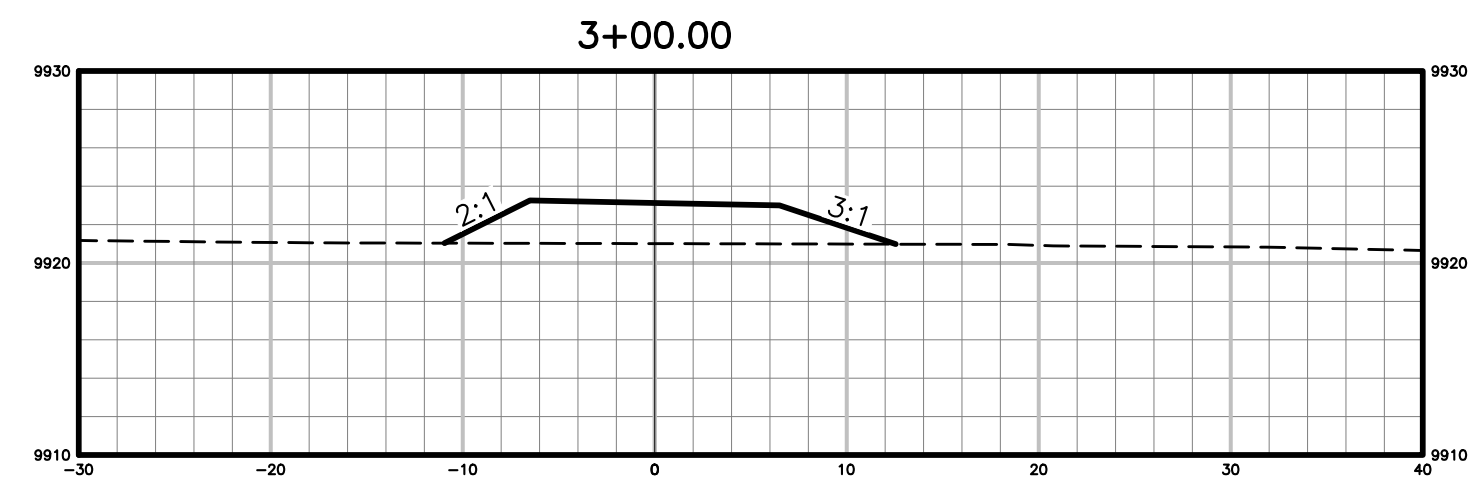
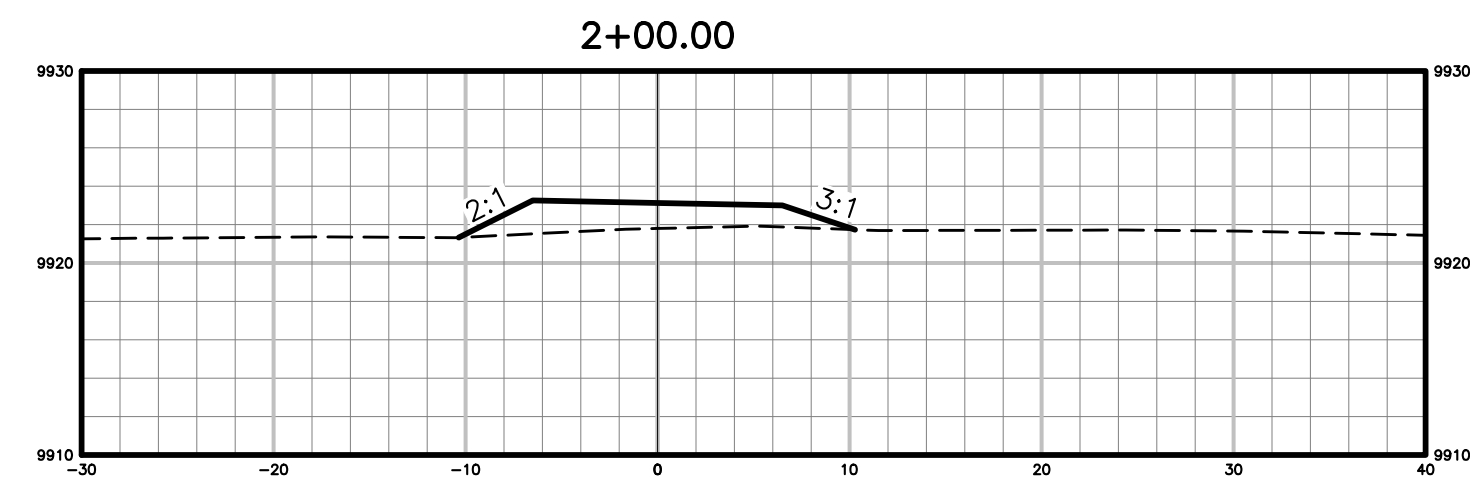
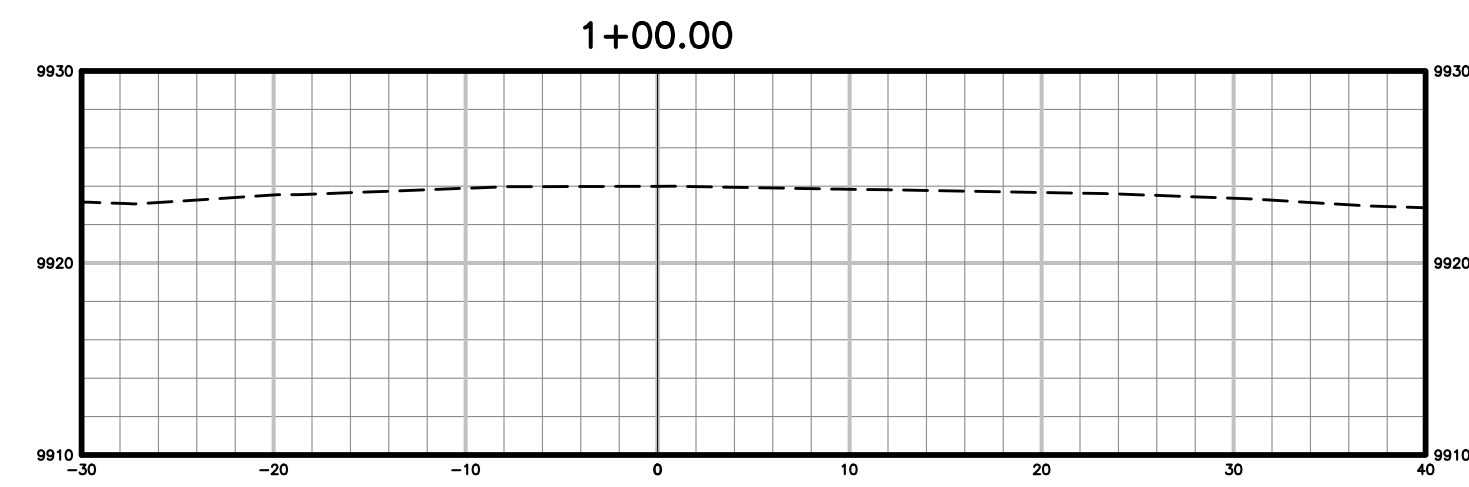
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Sheet: **5** OF **10**

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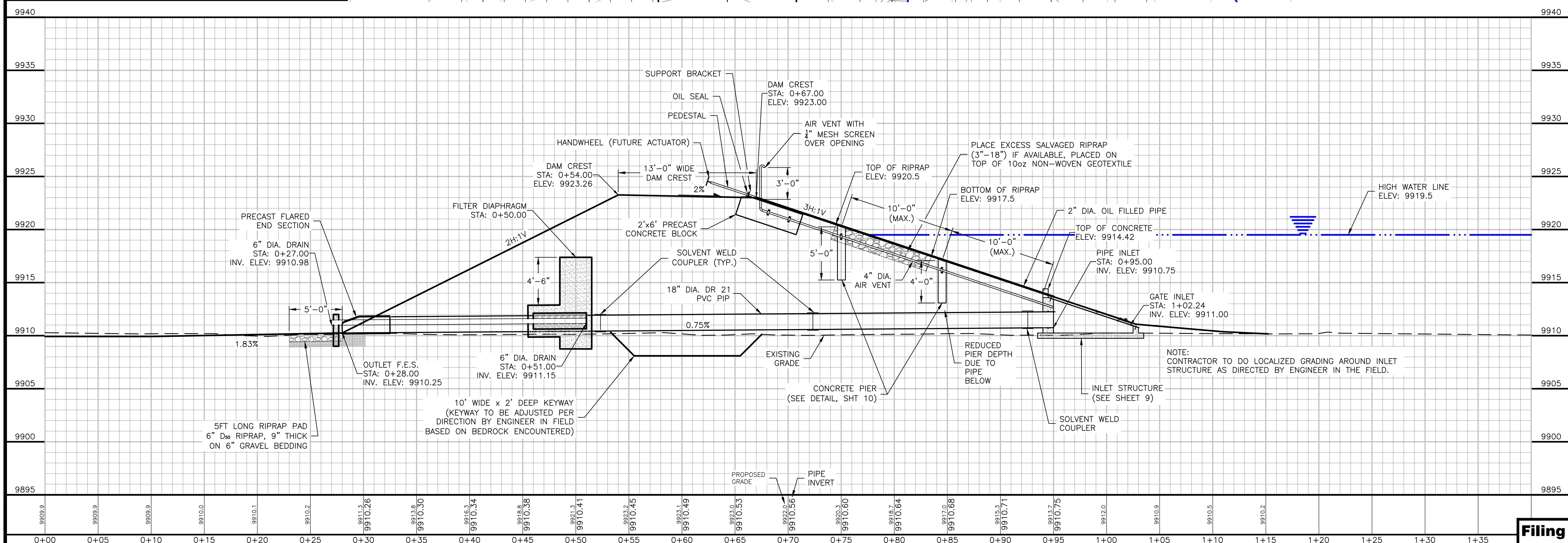
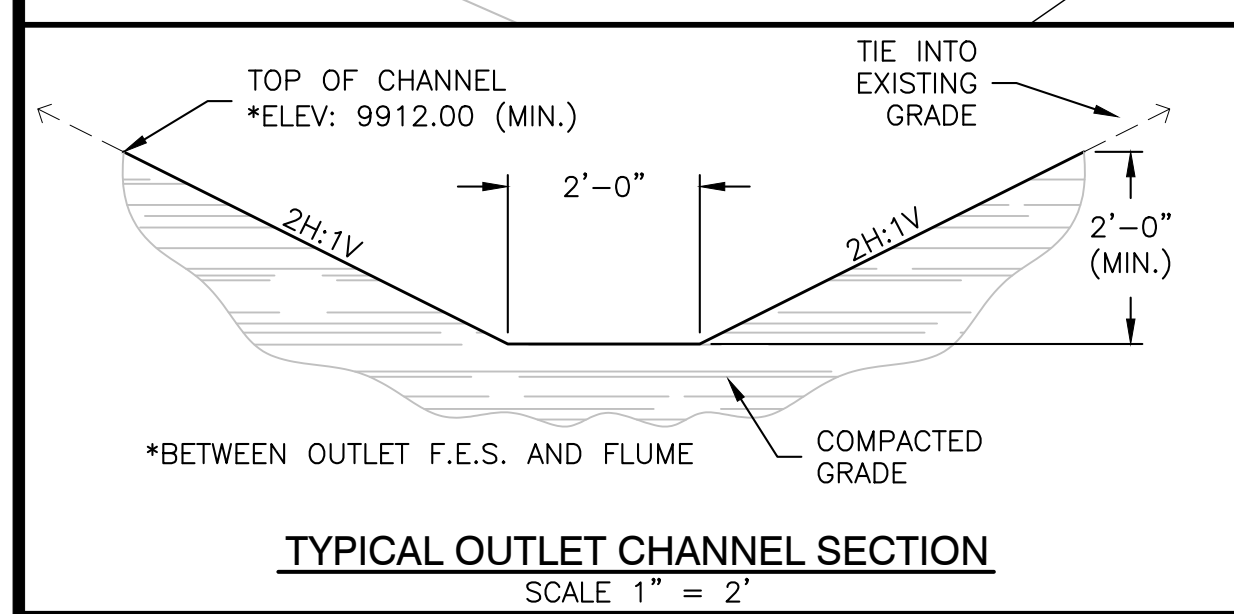
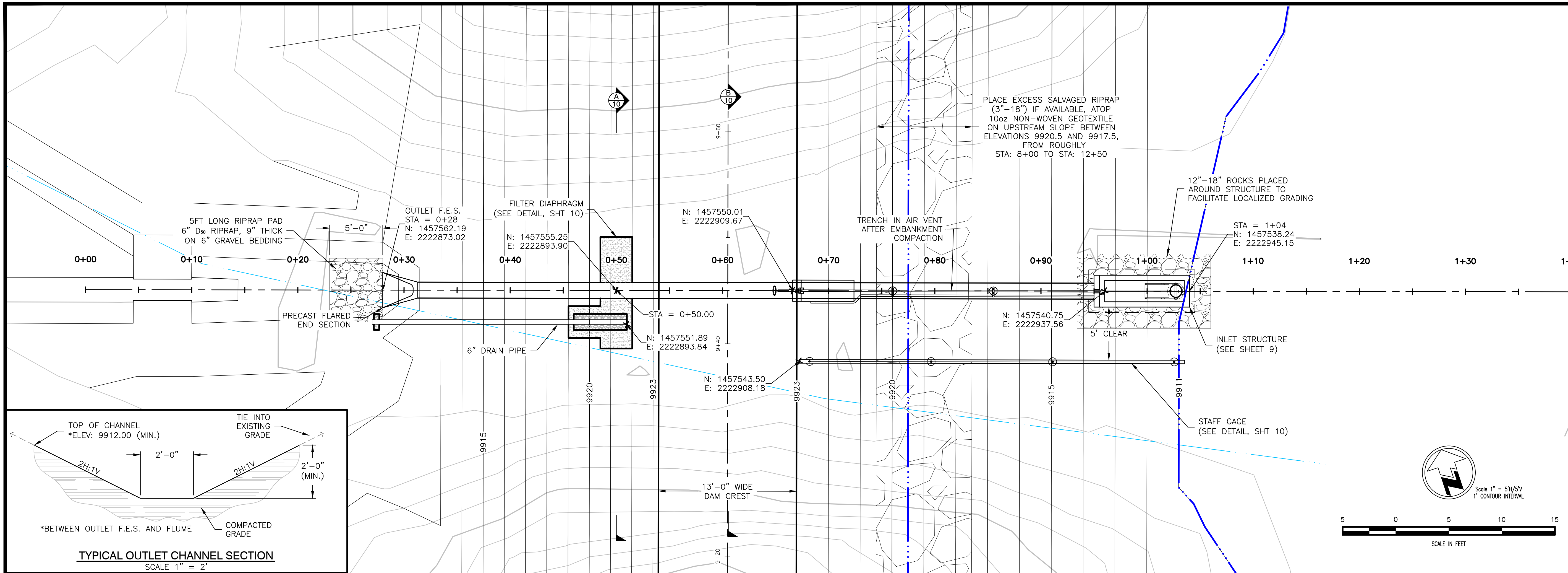
VINCIENT NO. 2 RESERVOIR RECONSTRUCTION CROSS-SECTIONS

SNOWCAP COAL CO.

NO	DATE	BY	CHK'D	DESCRIPTION

Date: Jan 2022
 Job No: 21-115
 Drawn: TH
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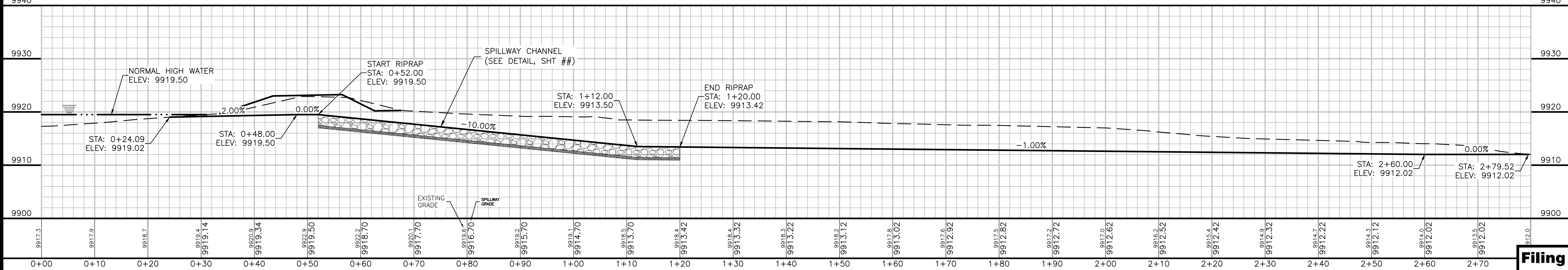
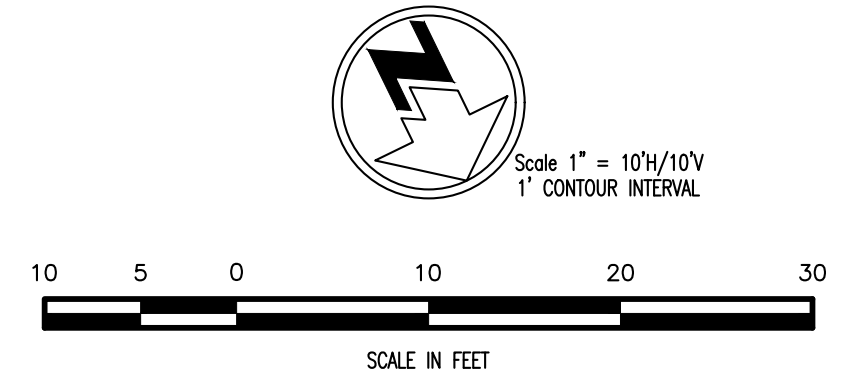
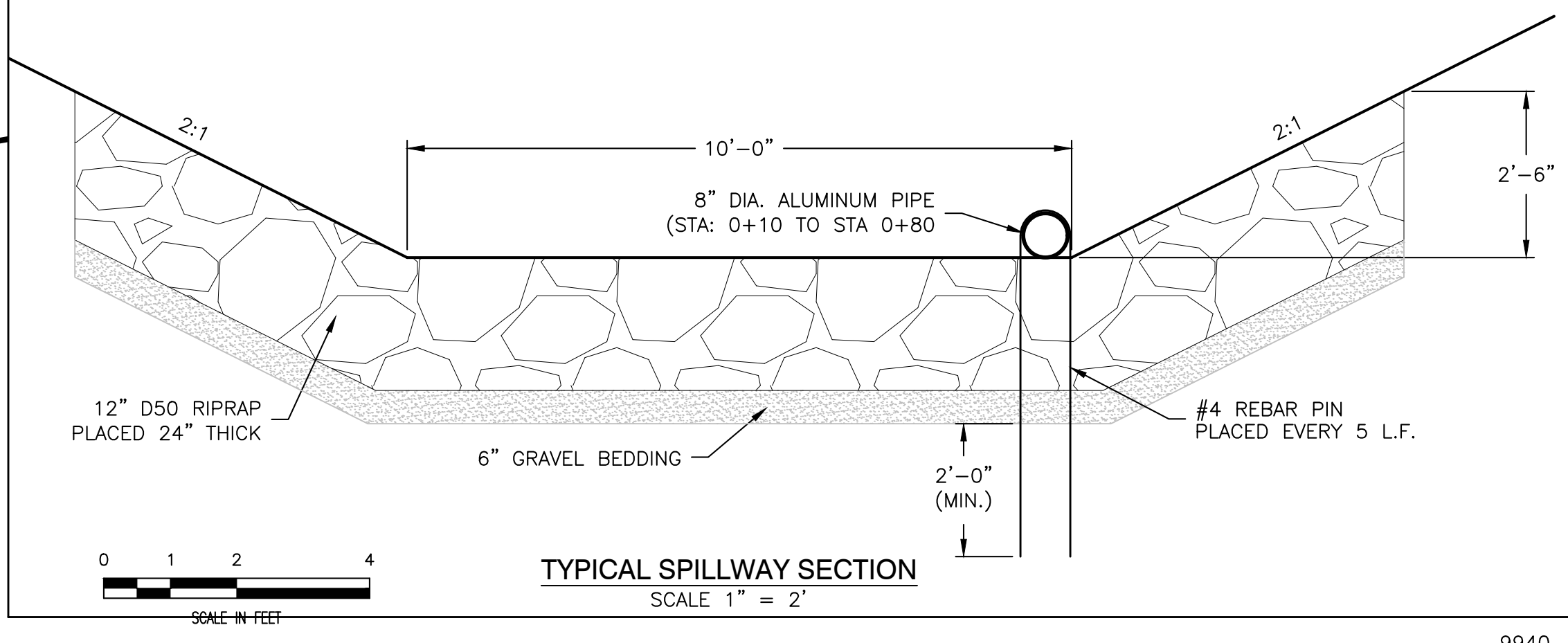
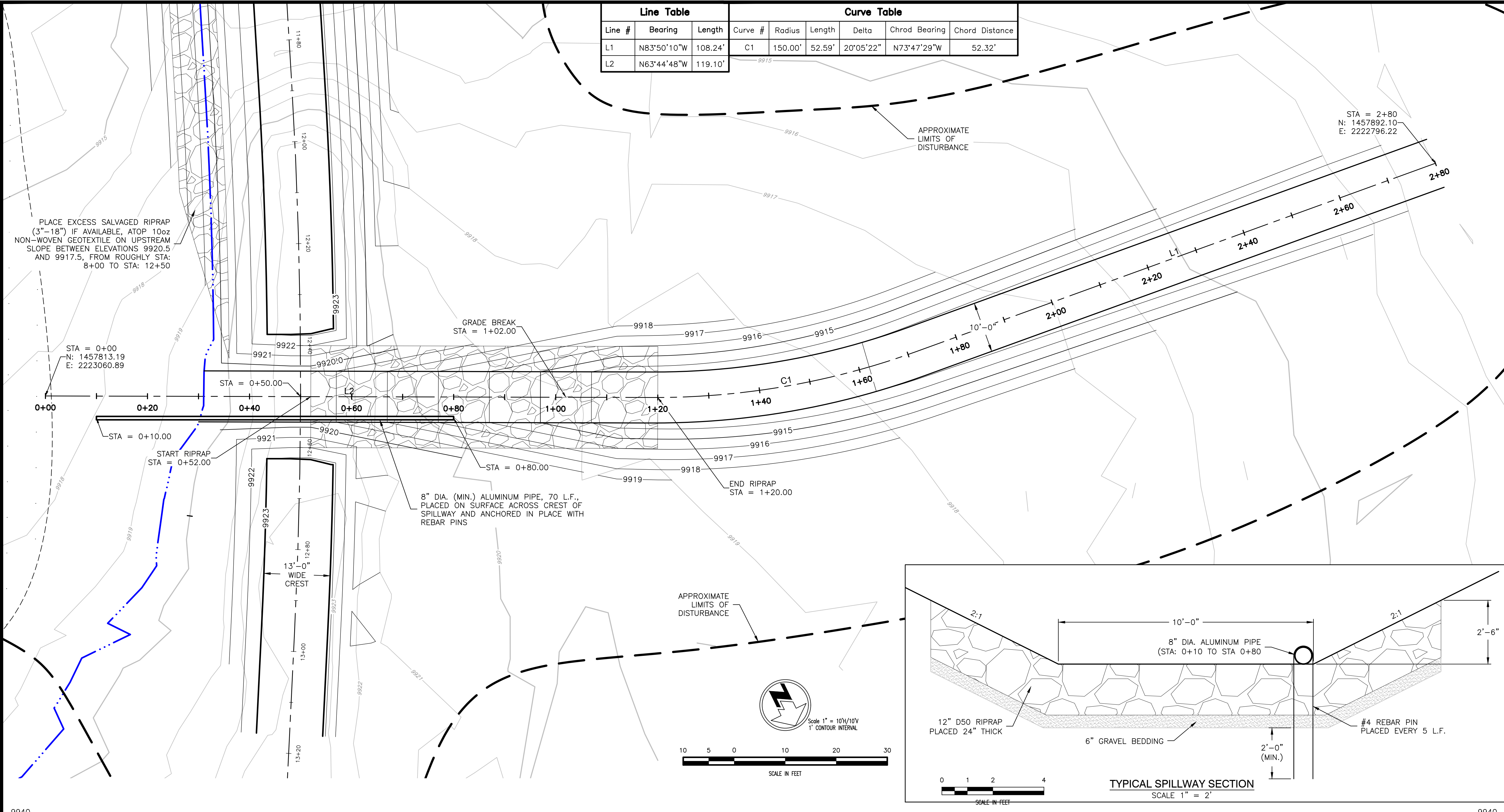


NO.	DATE	BY	CHK'D	DESCRIPTION

Date: Jan2022
Job No: 21-115
Drawn: TH
Design: TD/CU
Checked: CU
Scale: AS SHOWN



Line Table			Curve Table					
Line #	Bearing	Length	Curve #	Radius	Length	Delta	Chrod Bearing	Chord Distance
L1	N83°50'10"W	108.24'	C1	150.00'	52.59'	20°05'22"	N73°47'29"W	52.32'
L2	N63°44'48"W	119.10'						



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**VINCENT NO. 2 RESERVOIR RECONSTRUCTION
SPILLWAY PLAN AND PROFILE**

SNOWCAP COAL CO.

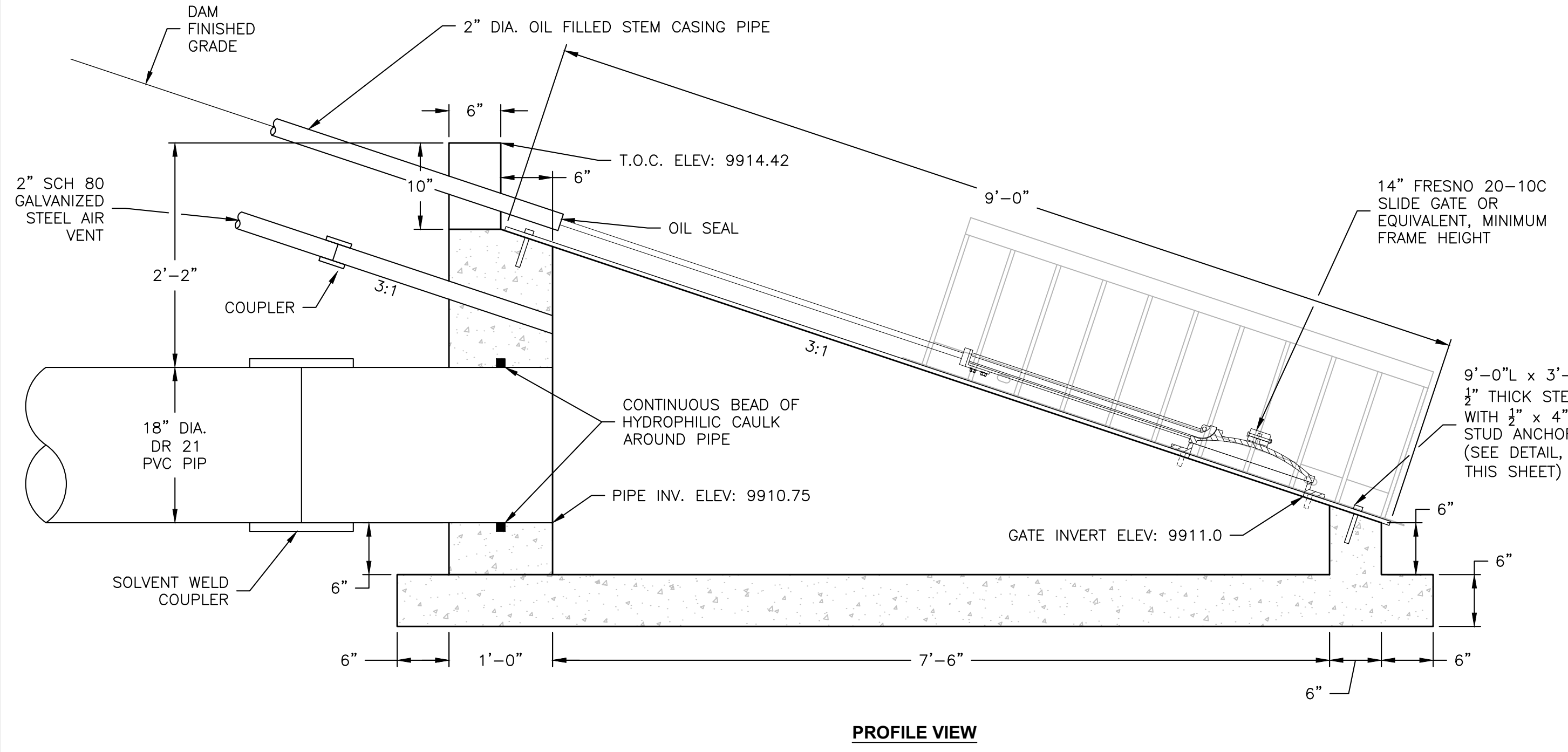
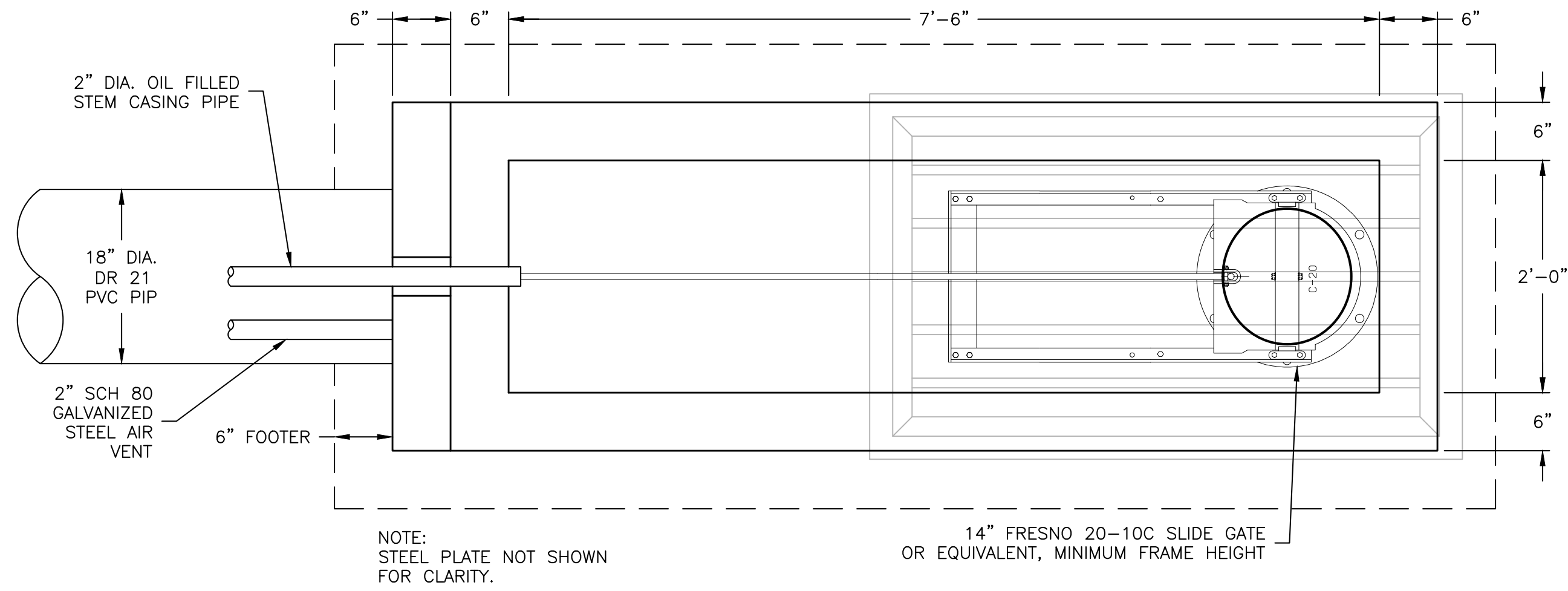
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Date: Jan2022
Job No: 21-115
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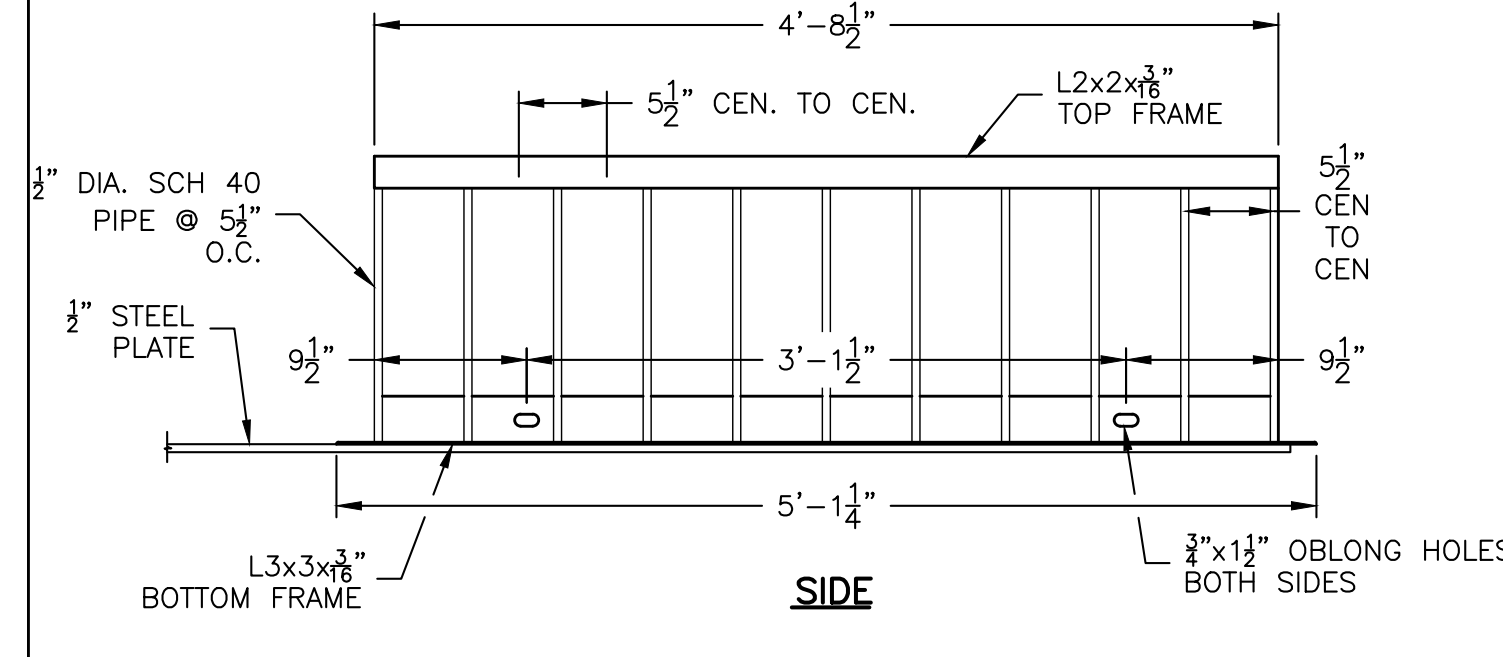
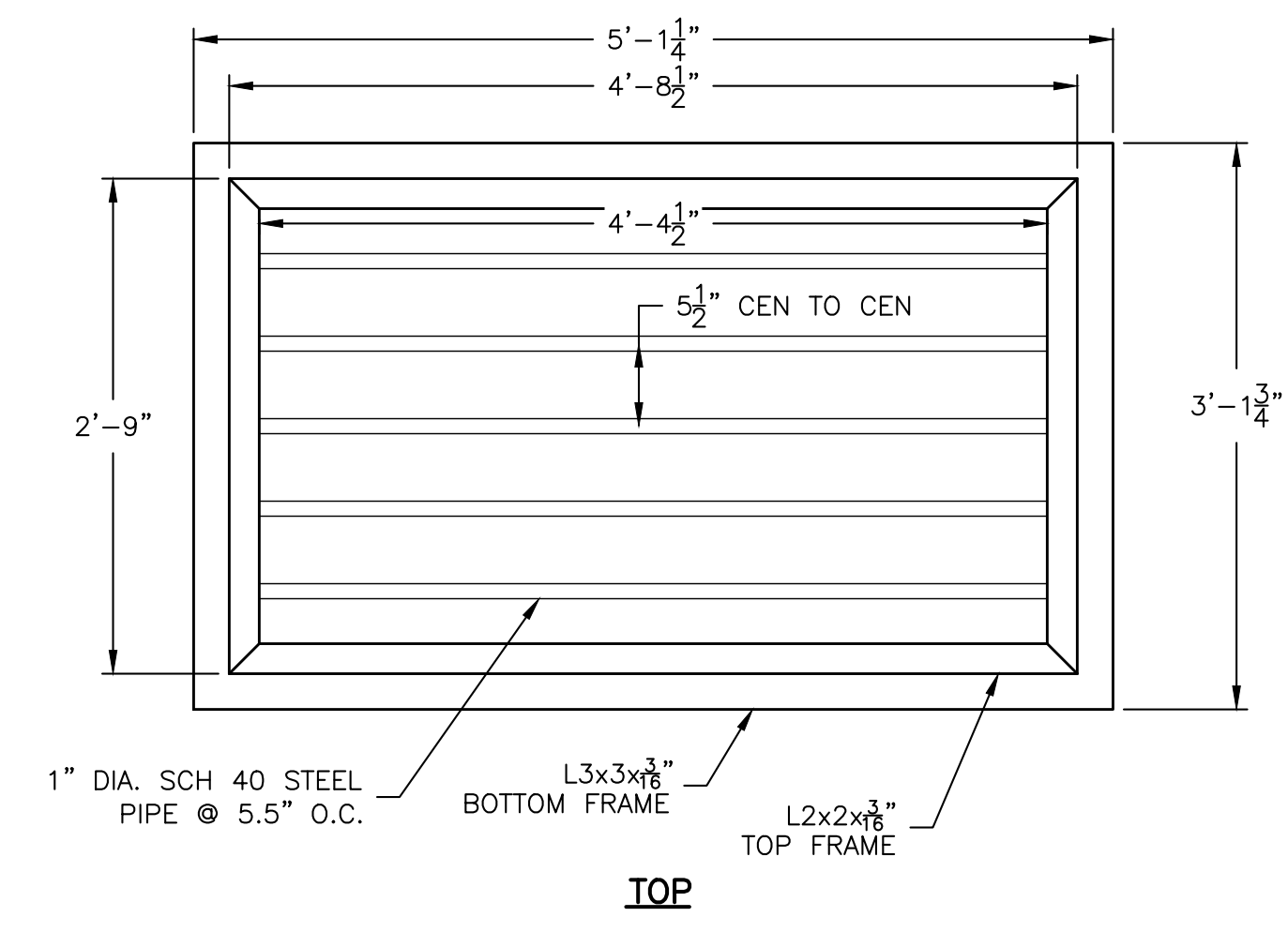


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Filing No. **C-2119**

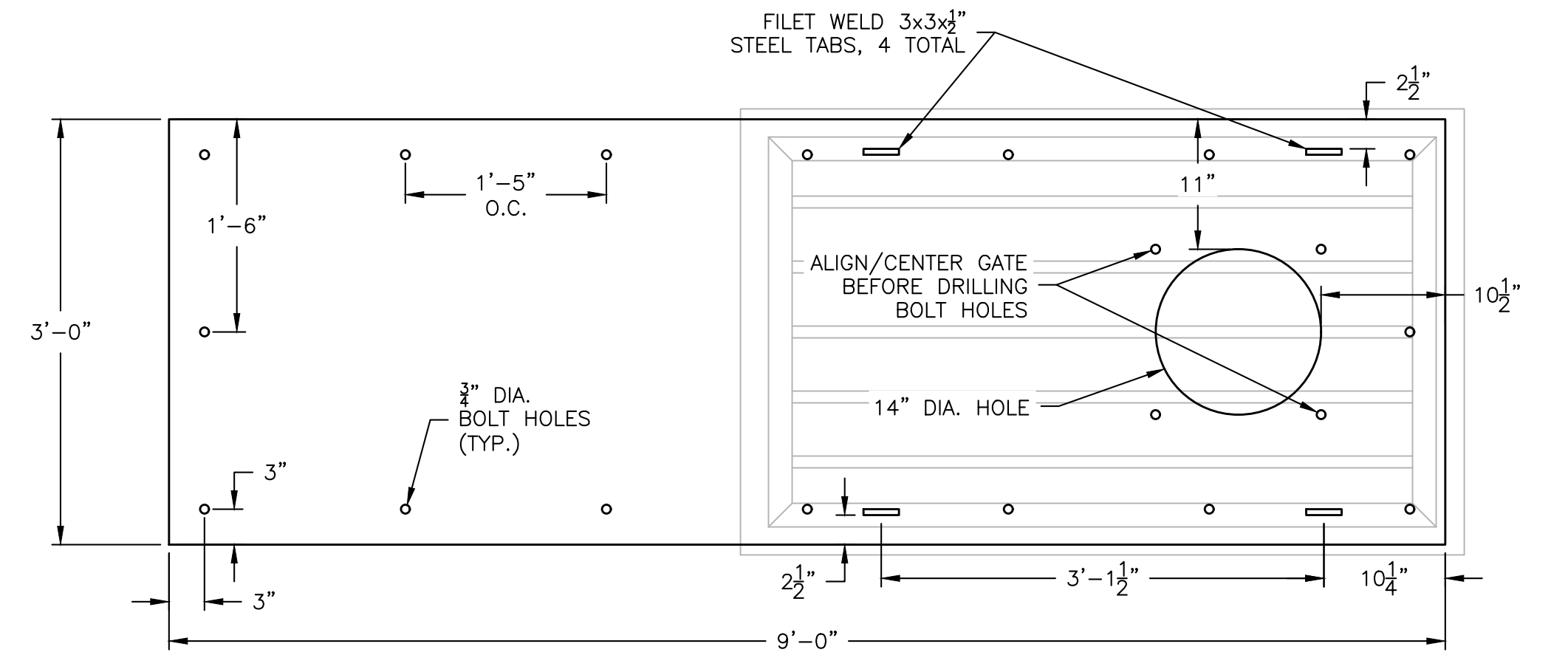


OUTLET INTAKE STRUCTURE DETAIL
 SCALE 1" = 1'



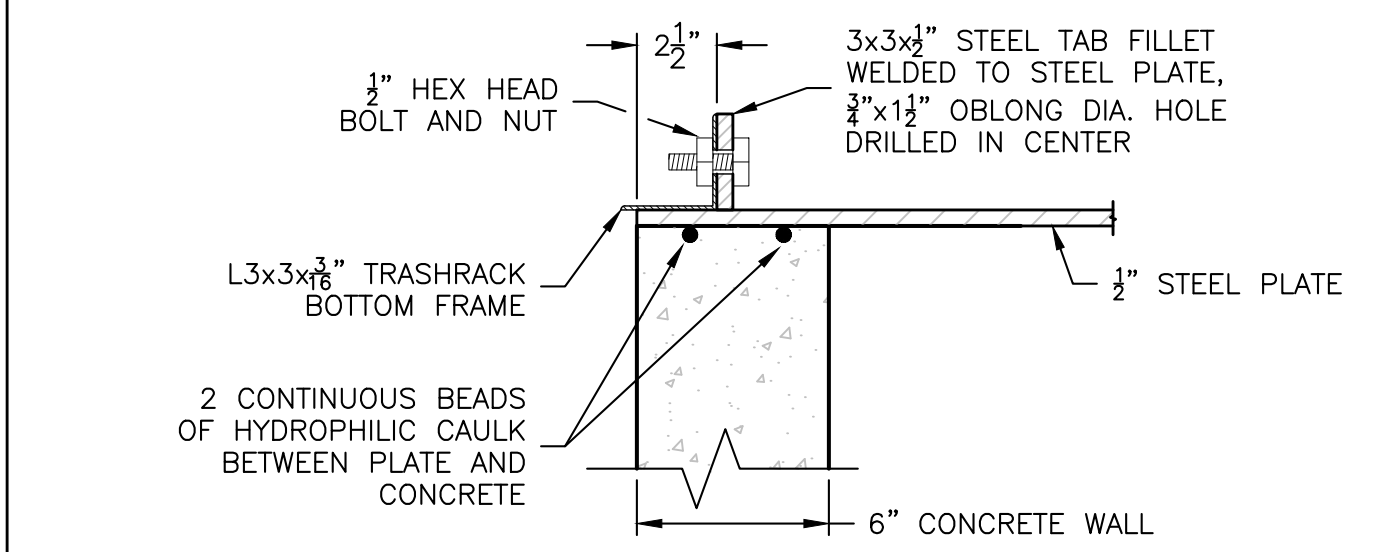
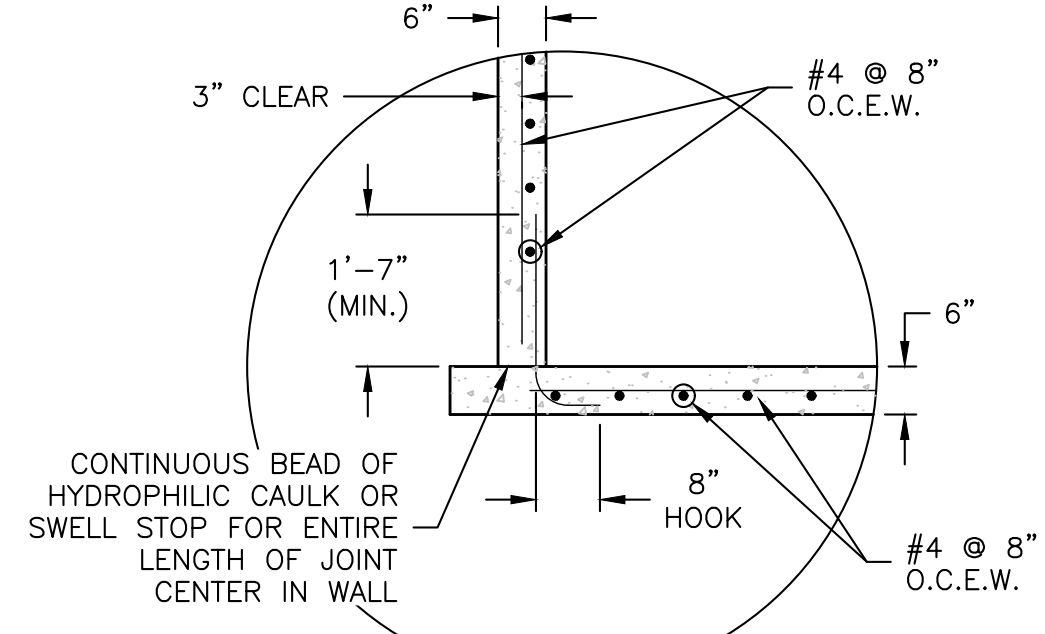
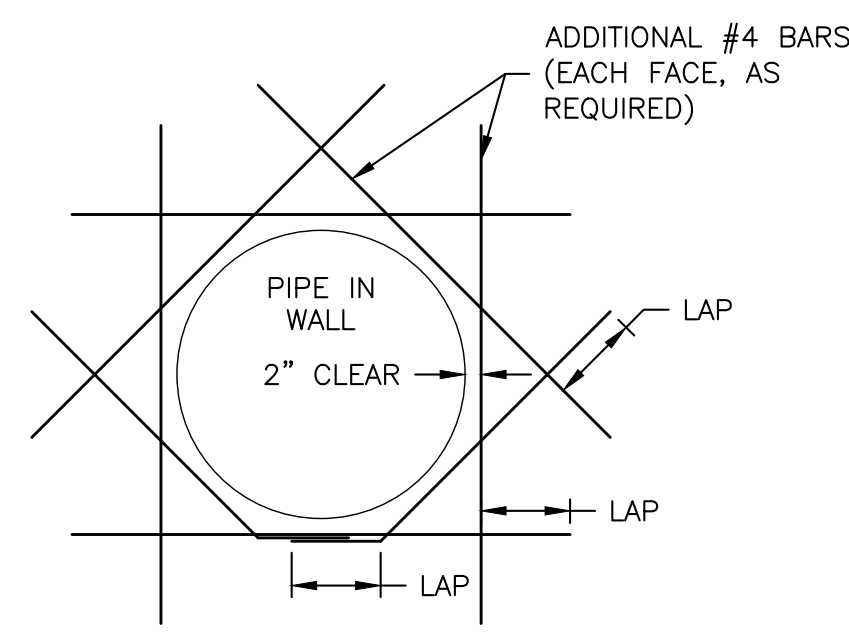
- NOTES:**
 1. CENTER TRASH RACK ON FACE OF INLET STRUCTURE.
 2. ALL STEEL SHALL BE EITHER GALVANIZED OR COATED WITH A POLYURETHANE OR 2 PART EPOXY PAINT RATED FOR SUBMERGED SERVICE.

TRASHRACK DETAIL
 SCALE 1" = 1'

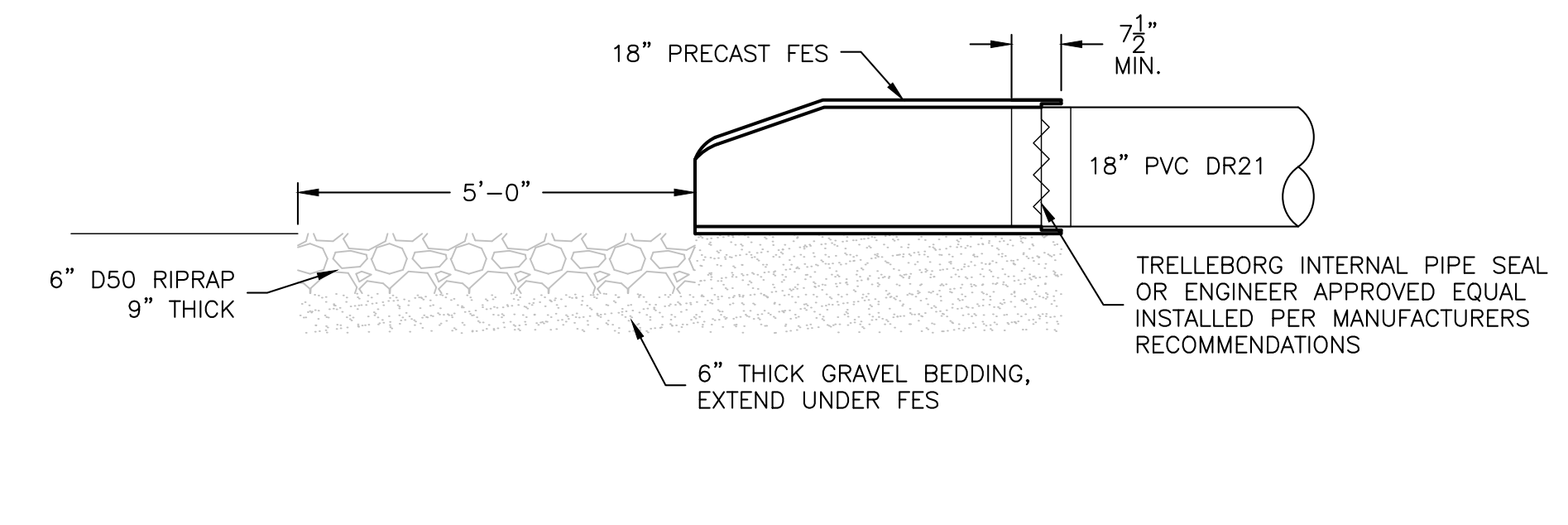


- NOTES:**
 1. STEEL PLATE TO BE SUPPLIED BY GATE SUPPLIER.
 2. PLATE SHALL BE COATED WITH 2 PART MARINE GRADE EPOXY OR ENGINEER APPROVED EQUAL.

STEEL PLATE DETAIL
 SCALE 1" = 1'



TRASHRACK CONNECTION DETAIL
 SCALE 1" = 6"



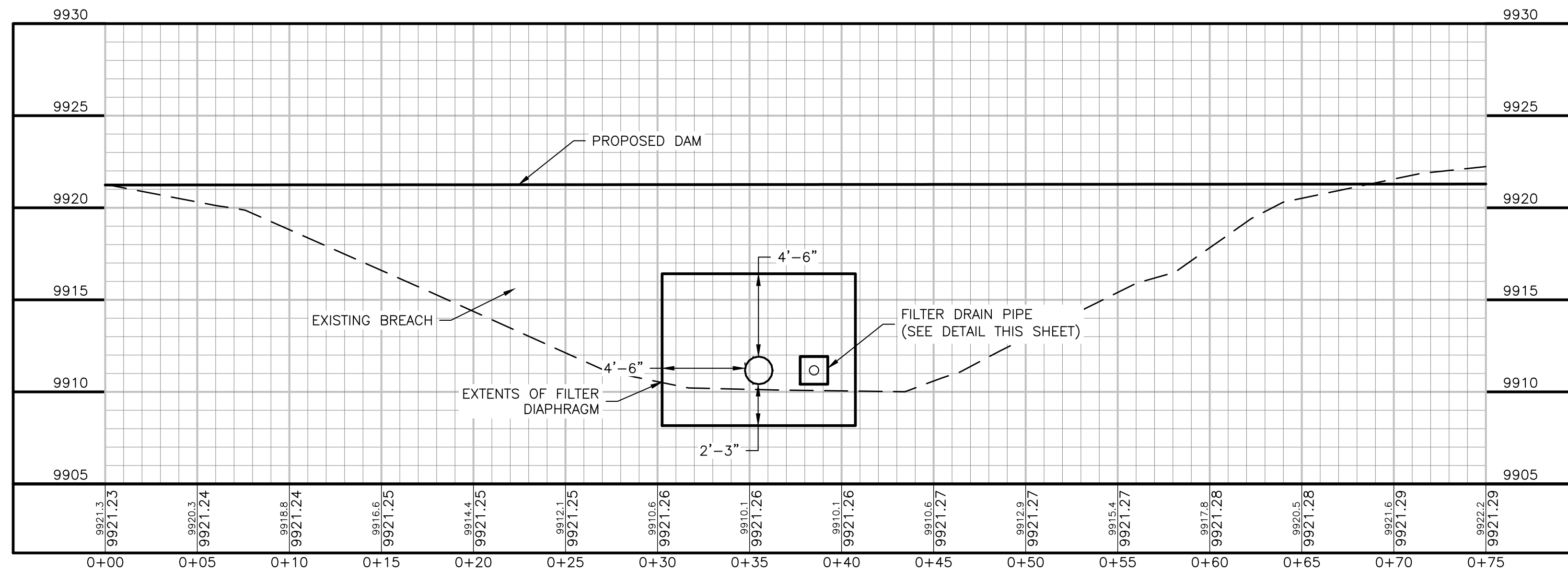
FES DETAIL
 SCALE 1" = 2'

NO	DATE	BY	CHK'D	REVISIONS	
				DESCRIPTION	

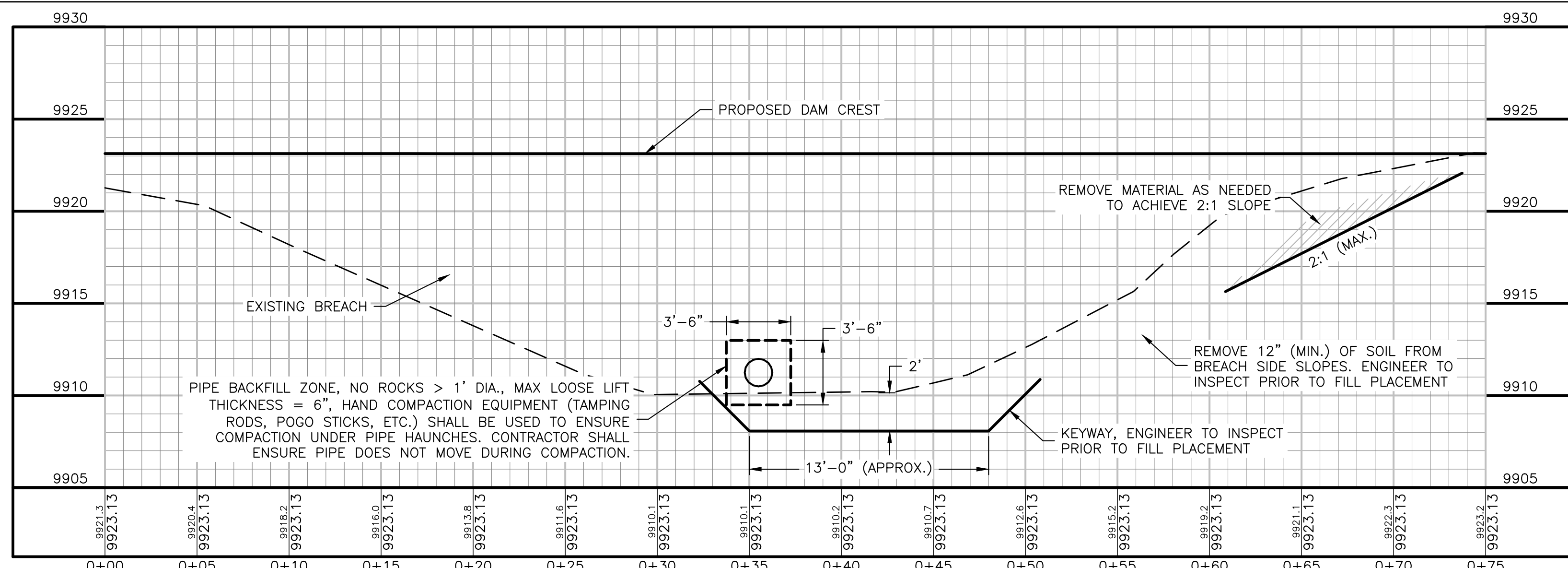
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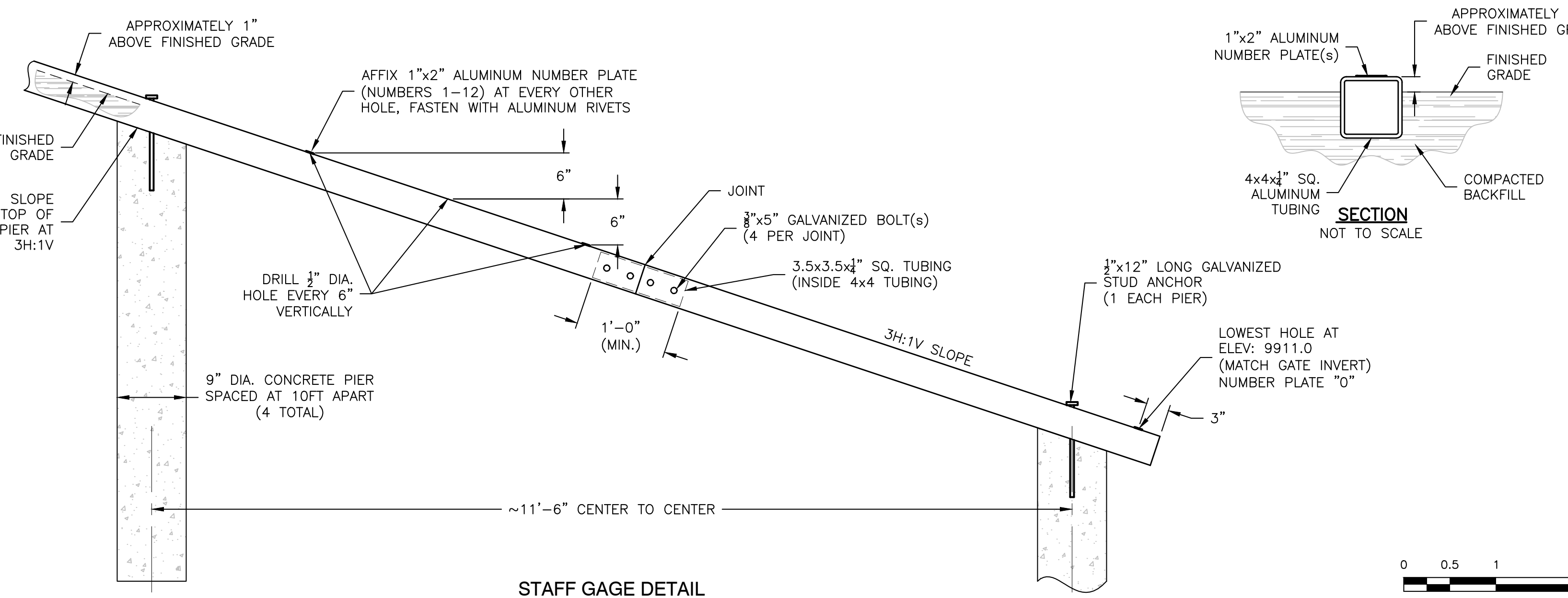
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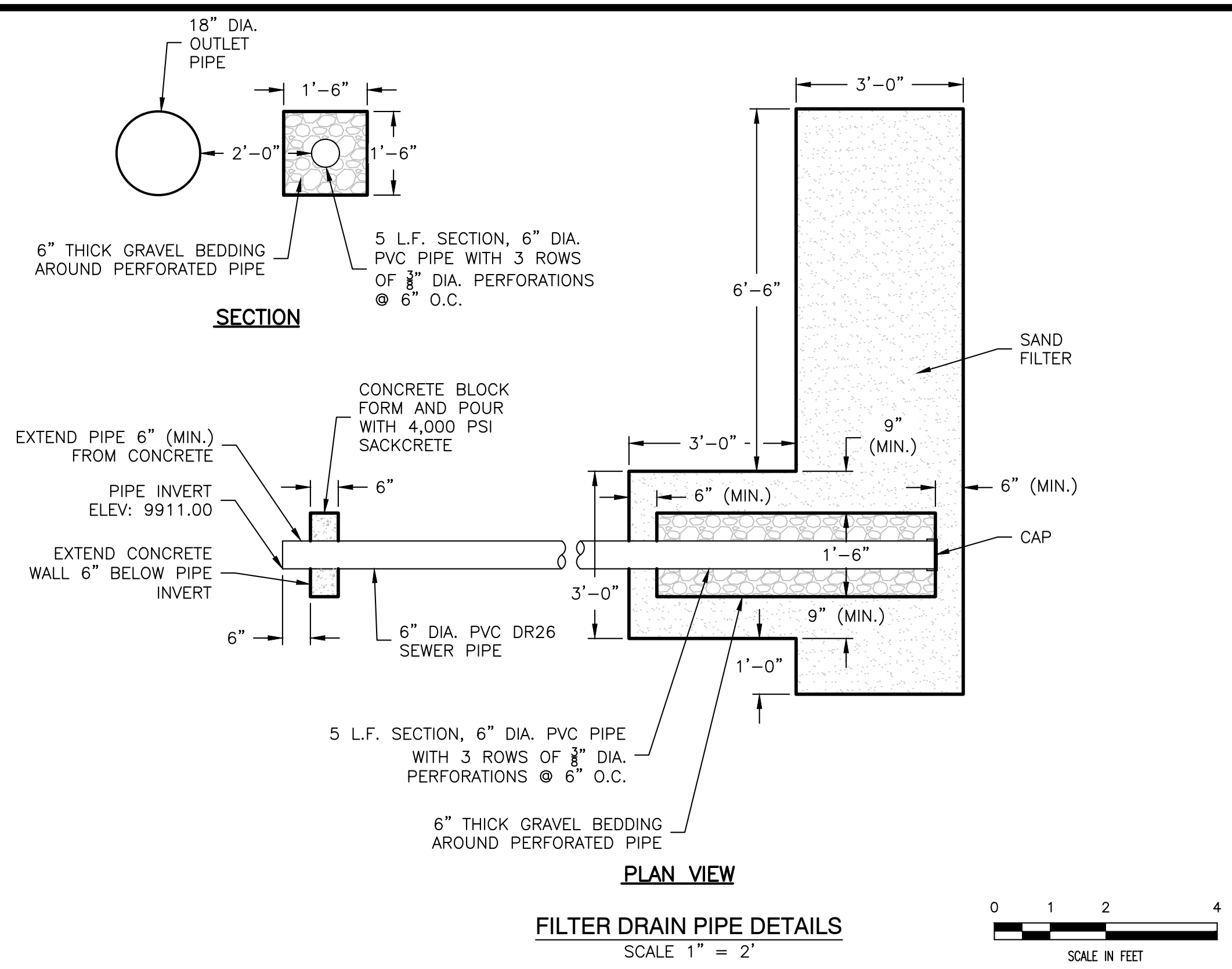
FILTER DIAPHRAGM CROSS-SECTION A
SCALE 1" = 5'



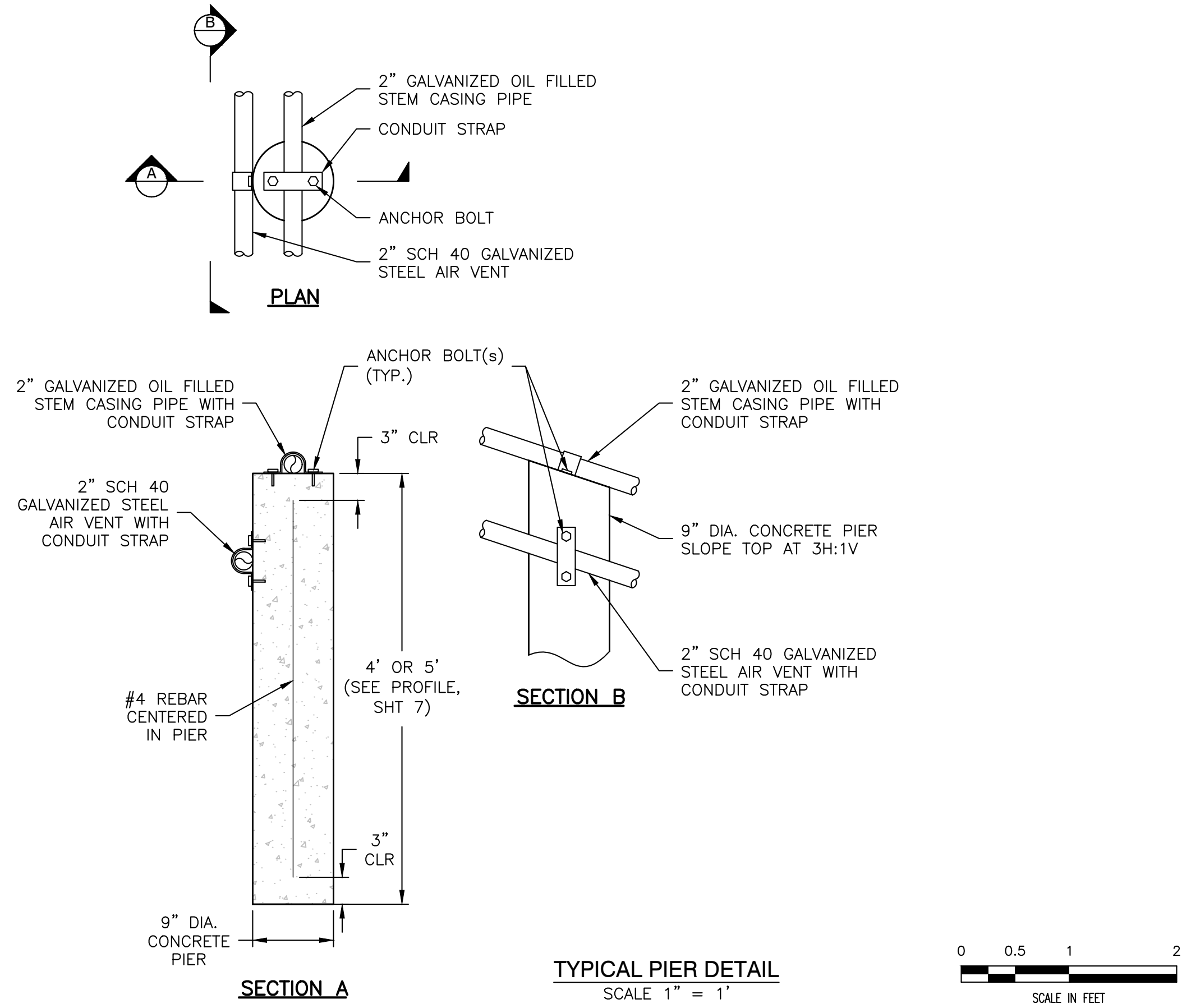
DAM BACKFILL SECTION B
SCALE 1" = 5'



STAFF GAGE DETAIL
SCALE 1" = 1'



FILTER DRAIN PIPE DETAILS
SCALE 1" = 2'



TYPICAL PIER DETAIL
SCALE 1" = 1'

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VINCENT NO. 2 RESERVOIR RECONSTRUCTION
OUTLET DETAILS

SNOWCAP COAL CO.

NO.	DATE	BY	CHK'D	DESCRIPTION

Date: Jan 2022
Job No: 21-115
Drawn: TH
Design: TD/CU
Checked: CU
Scale: AS SHOWN



Sheet: **10** OF **10**

Filing No. C-2119

7.9.3.3 All areas inundated by the reservoir and IDF surcharge.

7.9.4 Pipelines, utility lines, or any other construction that penetrates through the dam, abutment areas below the dam crest elevation, or that are within a distance of 50 feet or the height of the dam, whichever is greater, from either toe of the dam shall not be allowed without prior written approval by the State Engineer.

Rule 8. Construction Requirements

8.1 Pre-Construction.

8.1.1 Water Diversion Plan.

8.1.1.1 A plan to control surface water during construction shall be developed by the construction contractor based on information and requirements provided by an Engineer. The plan shall state the return interval or annual exceedance probability for the storm event the system is designed to protect against. The plan shall be prepared under the direction of an Engineer meeting the requirements of Rule [4.10](#).

8.1.1.2 The plan shall be approved by the Engineer and submitted to the State Engineer in advance of construction of the diversion facilities.

8.1.1.3 A hazard classification evaluation shall be performed by an Engineer based on consequences to the public for any proposed cofferdam. If the water diversion system is found to be High or Significant Hazard, the design shall meet the requirements of [Rule 7](#).

8.1.1.4 The water diversion plan shall address the removal or abandonment of cofferdams, spillways, conduits, or other temporary features after construction is complete.

8.1.2 Construction Observation Plan. Not less than thirty (30) days prior to construction, the Engineer shall submit a construction observation plan to the State Engineer. The construction observation plan shall include, at a minimum:

- A. The anticipated date of the start of construction;
- B. Names and resumes of the Engineer and staff to be used on the project;
- C. A construction observation schedule for the Engineer and staff;
- D. For dams on rock foundations, a schedule for observations of the foundation by a Geologist;
- E. A quality assurance plan including a schedule of the construction material tests; and
- F. Identification of the firm and qualifications of the personnel that will conduct the construction material tests in the field and in the laboratory.

8.1.2.1 Approval. Within fourteen (14) days of receipt, the State Engineer shall provide written comments and approval, or conditions for approval, of the construction observation plan. Construction shall not commence without approval of the observation plan by the State Engineer.

8.1.3 Pre-Construction Meeting. Prior to commencement of construction, a meeting shall be held between the Engineer, Owner, State Engineer, and contractor. The State Engineer shall be notified at least fourteen (14) days prior to the meeting. The contractor shall present and thoroughly explain its construction work plan along with any anticipated construction difficulties. The name of the subcontractors shall be furnished to the State Engineer at the meeting. Project

communication protocol between the Owner, Engineer, and the State Engineer shall be established at the pre-construction meeting.

8.2 Construction.

8.2.1 Engineer's Observation. The Engineer shall observe the progress and quality of the construction in accordance with the approved construction observation plan. The Engineer shall endeavor to prevent defects and deficiencies in the construction of the dam and appurtenant structures, and shall disapprove or reject work failing to conform to the approved plans and specifications. In cases where the Engineer has a contractual relationship with the contractor to provide engineering services, the Owner shall provide an independent, third-party engineer to perform the engineering quality assurance observations.

8.2.2 Construction Records. The Engineer shall maintain a record of construction that, at a minimum, shall include daily activity and progress reports, design change orders, all materials testing results, gate and valve installation certifications, photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion, all geologic information obtained, and documentation of any construction problems and remedies.

8.2.3 Progress Reports. Progress reports summarizing the status of the work shall be submitted to the State Engineer during the project at a minimum frequency and in a format agreed upon during the pre-construction meeting. The progress report shall include the contractor's three-week look-ahead schedule.

8.2.4 Notice for Inspection. The Engineer shall give the State Engineer at least five (5) days advance notice of any work items listed by the State Engineer in the pre-construction meeting, to allow for observation by the State Engineer.

8.2.5 Design Change Order. When unforeseen site conditions or material availability require that the construction work differ significantly from the approved plans and specifications, a design change order, including details, shall be provided by the Engineer to the State Engineer. No change shall be executed until approved by the State Engineer. Major changes shall be submitted in writing with supporting documentation, and approved in writing by the State Engineer. Minor changes, as determined by the State Engineer, may be approved verbally and documented in the final construction documents.

8.2.6 Final Inspection. The Engineer shall give the State Engineer at least fourteen (14) days advance notice prior to the project's final construction inspection. The Engineer shall document the completion of any punch list items.

8.3 Acceptance of Construction. Construction shall not be deemed complete nor shall storage of water be permitted until the State Engineer furnishes to the Owner a written statement of acceptance. The acceptance shall state the as-constructed dam dimensions, the capacity of the reservoir, and any limitations upon or requirements for the use of the dam. The State Engineer shall furnish the acceptance or denial within sixty (60) days of receipt of construction completion documents as outlined below.

8.3.1 Construction Completion Documents. The Engineer shall provide the following construction documentation within sixty (60) days of the final construction inspection:

8.3.1.1 A written notification that the project is complete and in general conforms with the approved plans, specifications, and design change orders.

8.3.1.2 A schedule for the first filling of the reservoir specifying fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam.

8.3.1.3 As-constructed plans showing the original approved plans amended to include any major or minor changes.

8.3.1.4 A final construction report summarizing construction, problems encountered and solutions implemented to resolve the problems, and compiling the construction records as identified in Rule [8.2.2](#).

8.3.1.5 A record of the location of permanent monuments and instrumentation as well as installation details and initial surveys and readings, if applicable.

8.3.1.6 The approved dam observation and monitoring plan in accordance with Rule [13.4](#).

8.3.1.7 A new or updated Emergency Action Plan including current inundation map in accordance with Rule [13.7](#).

8.3.2 For new dams and enlargements, the Engineer shall provide periodic review of the data included in the dam observation and monitoring plan on at least an annual basis for the first five years following construction completion. The Engineer shall submit the data and a written assessment of the dam's performance to the State Engineer annually.

8.3.3 Temporary Approval. Upon written request by the Owner and for good cause shown, the State Engineer may temporarily approve storage of water prior to submitting the construction completion documents. Only a partial reservoir filling will be granted under this Rule. Final acceptance of the construction for full use of the reservoir will not be granted until the requirements of Rule [8.3](#) have been satisfactorily completed. The written request shall include, at a minimum:

- A. A schedule for compliance with Rule [8.3](#);
- B. A notification letter signed and sealed by the Engineer in accordance with Rule [8.3.1.1](#);
- C. A schedule for the first filling of reservoir in accordance Rule [8.3.1.2](#);
- D. A monitoring plan for observing the behavior of the dam and appurtenances during the initial filling or refilling of the reservoir; and
- E. A new or updated EAP prepared in accordance with Rule [13.7](#).

Rule 9. Requirements for Removing or Breaching an Existing Dam

9.1 Breach Plan and Application. An Owner proposing to permanently remove or breach a dam shall submit an application package to be approved by the State Engineer prior to commencing work. The application shall be completed on a form provided by the State Engineer and shall include the following:

9.1.1 Documentation demonstrating that notice has been given to land owners and agencies potentially impacted by removal or breach of the dam.

9.1.2 Documentation showing that all permitting requirements by local, state and federal agencies have been satisfied.